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Atmos. Chem. Phys., 5, 57-66, 2005

www.atmos-chem-phys.net/5/57/2005/

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## Measurements in a highly polluted Asian mega city: observations of aerosol number size distribution, modal parameters and nucleation events

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**Abstract.** Diurnal variation of number size distribution (particle size 3-800nm) and modal parameters (geometric standard deviation, geometric mean diameter and modal aerosol particle concentration) in a highly polluted urban environment was investigated during October and November 2002 in New Delhi, India. Continuous monitoring for more than two weeks with the time resolution of 10min was conducted using a Differential Mobility Particle Sizer (twin DMPS). The results indicated clear increase in Aitken mode (25-100nm) particles during traffic peak hours, but towards the evenings there were more Aitken mode particles compared to the mornings. Also high concentrations of accumulation mode particles (>100nm) were detected in the evenings only. In the evenings, biomass/refuse burning and cooking are possible sources beside the traffic. We have also shown that nucleation events are possible in this kind of atmosphere even though as clear nucleation events as observed in rural sites could not be detected. The formation rate of 3nm particles (J<sub>3</sub>) of the observed events varied from 3.3 to 13.9cm<sup>-3</sup>s<sup>-1</sup> and the growth rate varied from 11.6 to 18.1nmh<sup>-1</sup> showing rapid growth and high formation rate, which seems to be typical in urban areas.

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Citation: Mönkkönen, P., Koponen, I. K., Lehtinen, K. E. J., Hämeri, K., Uma, R., and Kulmala, M.: Measurements in a highly polluted Asian mega city: observations of aerosol number size distribution, modal parameters and nucleation events, Atmos. Chem. Phys., 5, 57-66, 2005. [Bibtex](#) [EndNote](#) [Reference Manager](#)

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