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# Surface observation of sand and dust storm in East Asia and its application in CUACE/Dust

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Abstract. The spatial-temporal distributions and sources of sand and dust storm (SDS) in East Asia from 2001 to 2006 were investigated on the basis of visibility and $PM_{10}$ data from the routine SDS and weather monitoring networks run by CMA (China Meteorological Administration). A power functional relationships between $PM_{10}$ and visibility was found among various regions generally with a good correlation ($r^2$=0.90), especially in Asian SDS source regions. In addition, three SDS occurrence centers, i.e. western China, Mongolia and northern China, were identified with the Mongolia source contributing more dust to the downwind areas including Korea and Japan than other two sources. Generally, high $PM_{10}$ concentrations were observed in most areas of northern China. The highest value was obtained in the center of western China with a spring daily mean value of 876 $\mu gm^{-3}$, and the value in other source regions exceeds 200 $\mu gm^{-3}$. These data sets together with the satellite observations in China form the main observation database for the evaluation and data assimilation of CUACE/Dust system – an operational SDS forecasting system for East Asia.

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