

## 2006年北京春季气溶胶吸收系数的分离研究

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收稿日期 2007-3-16 修回日期 2007-5-10 网络版发布日期: 2007-9-30

**摘要** 对2006年春季北京城区大气气溶胶中沙尘和黑碳气溶胶吸收系数的波长指数及其对总吸收系数的贡献进行了估算。结果表明: 2006年春季北京城市地区测点, 黑碳气溶胶吸收系数随波长的变化呈指数递减, 假设某些天的气溶胶吸收无沙尘的贡献, 估算的波长幂指数 $a=-0.92$ 。另外, 计算了北京3次浮尘天气下沙尘气溶胶对吸收系数(520 nm波段)的贡献, 计算表明, 在浮尘天气影响期间, 沙尘气溶胶对吸收系数的贡献平均为32.8%, 黑碳气溶胶仍是浮尘影响期间城市气溶胶吸收消光的主要物质。

**关键词** [沙尘](#) [黑碳](#) [吸收系数分离](#) [吸收系数波长指数](#)

**分类号** [X513](#)

## The Decoupling of Aerosol Absorption Coefficient in the Spring of 2006 at an Urban Site in Beijing

**Abstract** A statistic regression approach was introduced to estimate the wavelength index of black carbon and dust particles, and further to separate the contribution of the two types of aerosols to the aerosol light absorption coefficients measured in the spring of 2006 in Beijing urban area. The results show that the wavelength exponent index ( $a$ ) of black carbon aerosol at Beijing urban site was about -0.92, which was in agreement to the value of  $(-0.8\pm 0.2)$  reported in related studies. The decoupling analysis of the measured light absorption coefficients during the three floating dust periods at Beijing in the spring of 2006 (March 25th, March 27th, April 9th) demonstrate that, on average, light absorption caused by dust particles takes up about 32.8% of total light absorption at 520 nm wavelength, and by black carbon aerosol more than 60%, which indicates that the black carbon is still the major contributor of aerosol light absorption in Beijing urban areas even in the floating dust periods.

**Key words** [dust](#) [black carbon](#) [decoupling of aerosol absorption coefficient](#) [wavelength exponent index](#)

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