

This work did a very nice job in measuring the aerosol optical properties at both ground and 260 m in winter Beijing. The quality of the measurement data were ensured by inter-comparisons across different instruments. The authors found substantial vertical differences in aerosol optical properties (e.g., SSA) at nighttime due to strong local emissions. They also clarified that the lensing effect played an important role in enhancing BC absorption in Beijing. Source apportionment of BrC absorption at 370 nm were conducted using two statistical tools, both suggesting that fossil fuel combustion is the dominant BrC contributor in urban Beijing. This work is very well designed and written, I would recommend this work to be published on Atmos. Chem. Phys. with only one comment to be addressed

The comment is about the method for $b_{\text{abs},270\text{nm},\text{BrC}}$ estimation with Eqs (3) and (4).

In Eq (3), the BC absorption at 370nm is estimated using a fitted power law, and BrC at 370 nm is then derived by subtracting the BC absorption from the total measured absorption.

However, this work has demonstrated that the coating of organic aerosol on BC (or “lensing effect”) can contribute to the light absorption enhancement of BC substantially (20~40%). In Eqs (3) and (4), such coating effect was not considered, which might lead to an overestimation of $b_{\text{abs},270\text{nm},\text{BrC}}$. So please provide an estimation on the uncertainty associated with $b_{\text{abs},270\text{nm},\text{BrC}}$ estimation due to OA coatings, or more discussions on the uncertainties.