

Interactive comment on “Impacts of short-term mitigation measures on PM_{2.5} and radiative effects: a case study from a regional background site near Beijing, China” by Qiyuan Wang et al.

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This study was conducted in a regional background site near Beijing during the 19th National Congress of the Communist Party of China. The authors investigated the effectiveness of short-term mitigation measures on PM_{2.5} and aerosol direct radiative forcing. They found that PM_{2.5} mass and its sources are reduced significantly during the control period compared with the non-control period. Those decreases in aerosol concentration in turn, as shown by the climate radiative effect estimates, alleviated aerosol cooling effects. Moreover, the authors further analyzed two pollution episodes after control period based on the WRF-Chem model. This is an interesting

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study. I believe that this paper makes a useful contribution to the literature and could be published in ACP after a minor revision in response to the following suggestions (see specific comments below). Specific Comments: 1. In section 2.2.1: the authors should give the storage condition of the samples. 2. Page 8, Line 11-13: It should be noted that the equation (12) is based on the assumption of no contribution from brown carbon, a light-absorbing organic matter. It should be pointed out this in the article. 3. Section 3.1: This study analyzed data from a single site near Beijing, even though it included detail chemical and optical measurements. The emission control for NCCPC control period included a wide range of measures and could impact the air quality for a larger domain. Therefore, it would be more convincing if the authors could also include measurements for surrounding areas from other platforms, such as the AERONET AODs and satellite aerosol retrievals. 4. About the light scattering construction of the particles (Sec 3.4, "Impacts of PM_{2.5} emission reduction on aerosol radiative effects"), the reconstructed bscat shows some deviation from the estimated bscat values. What is the reason for the difference? 5. The paper must be polished and edited for English grammar and word usage before it can be published in ACP.

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