

Interactive comment on “Spatiotemporal variation of aerosol and potential long-range transport impact over Tibetan Plateau, China” by Jun Zhu et al.

Anonymous Referee #2

Received and published: 9 August 2019

General comments: Tibetan Plateau (TP) plays a very important role in East Asian climate. Perturbation in thermodynamic fields of the Qinghai-Xizang Plateau by anthropogenic or natural aerosols might induce substantial regional climate changes and serious air pollutions. However, the variations of aerosols in TP region are less known compared with those in East or South Asian regions. This study investigates the characteristics and potential sources of aerosols in TP based on ground-based and satellite observations as well as numerical models. The results are interesting and they may help us better understanding the temporal and spatial variations of the aerosols in TP and subsequently the aerosol climate effects in Asian region. The topic of this study is novel to some degrees. And the paper has a potential for publication in the journal

C1

after revisions. Comments: 1. Introduction should be re-organized to a degree to make it more readable and more clearly. 2. The authors should make some comparisons of aerosol optical properties which derive from different platforms when investigating the temporal and spatial variations of aerosols in TP region. 3. A more detailed description on the accuracy of each type of platform data is needed. Does MODIS products accurate enough in bright surface (such as in desert region in TP)? 4. Validation of GEOS-Chem is need. The authors should compare the simulated aerosols with the observations. 5. How frequency of aerosol pollutions in Qinghai-Tibet Plateau based on your study? 6. A deeper discussion is needed in Results section, such as make some comparisons or summaries from similar studies. 7. Conclusions should be shortened and more concise. 8. English should be improved substantially throughout the whole manuscript.

Interactive comment on Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2019-444>, 2019.

C2