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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Air pollution slows down surface warming over the Tibetan Plateau" *by* Aolin Jia et al.

Anonymous Referee #1

Received and published: 8 October 2019

This is a good job. I recommend this article to be published in ACP after addressing the following issues.

Major comments:

1, The Tibetan Plateau (TP) area in your analysis should be defined clearly when you present Fig. 1.

2, The objectives of this paper need to be more clearly stated in the introduction part. Maybe the author needs more references reading.

3, To perform more solid results, some data sets need to be analyzed:

3.1, Please add ERA5 reanalysis data into your analysis. ERA5 can be found at

https://cds.climate.copernicus.eu/#!/search?text=ERA5&type=dataset

3.2, Please use more albedo data such as GlobAlbedo, CLARA-SAL, MODIS. . .. . . (see He et al., 2014). He, T., S. Liang, and D.-X. Song (2014), Analysis of global land surface albedo climatology and spatial-temporal variation during 1981–2010 from multiple satellite products, J. Geophys. Res. Atmos.,119,10,281–10,298, doi:10.1002/2014JD021667.

4, The conclusions need to be deepened. Whether other effects also can slow down surface warming over the TP? Could you conclude that aerosols increase is the major contribution to surface warming mitigation over the TP? Maybe the author needs to add more evidence.

Minor comments:

1, Why the first author is not the corresponding author?

2, In the abstract, the time range needs to be specified for the contribution of 48.6%.

3, Please use the orange to replace the yellow color in Fig. 7.

4, Please add more words in the caption of Fig. S3.

5, There is a good review paper including discussions of aerosol effects over the TP (Qian et al., 2015). Qian, Y., et al.: Light-absorbing particles in snow and ice: Measurement and modeling of climatic and hydrological impact, Adv. Atmos. Sci., 32, 64-91, 2015.

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