

Interactive comment on “Are precipitation anomalies associated with aerosol variations over Eastern China?” by Xiangde Xu et al.

Anonymous Referee #2

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Summary

The present work investigates how the interannual variability of precipitations with different intensities in the EC region (Eastern China) from 1961 to 2010. The motivation of the work is established in the introduction. Satellite data, Meteorological station observations, and aircraft flight data are used and subsequently introduced with select relevant details. In the main part of the work the results are presented and analyzed, and the authors carefully quantify and discuss the frequency of light rain significantly decreased and the occurrence of rainstorm, especially the extraordinary rainstorm significantly increased over the recent decades. The work addresses an interesting question - Are precipitation anomalies associated with aerosol variations over Eastern China? The key insight is that the aircraft measurements over the EC confirmed that the diameters of cloud droplets decreased under high aerosol concentration condition,

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thereby inhibiting weak precipitation process.

The manuscript is thorough, clear, compelling, very well written, and presents the results with good figures and tables. I recommend publication after attending to the following detailed comments.

Detailed comments

Line 71: Please give references for the previous investigations of this issue primarily focused on limited cases (references).

Section 2: Please give a website or reference for MODIS data.

For all of Chinese map, if the author can use LambertEqualArea projection (<http://ncl.ucar.edu/Applications/maponly.shtml>), that would be nice.

Fig. 10: Please restrict the four panels in the same size.

Interactive comment on Atmos. Chem. Phys. Discuss., doi:10.5194/acp-2016-1034, 2017.

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