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Discussions

Interactive comment on "Retrieval of aerosol optical properties over Beijing: a comparison between SKYNET and AERONET" *by* Xianyi Yang et al.

Anonymous Referee #2

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This study consists on two different pieces of work. First, a comparison of the aerosol optical properties retrieved by SKYNET and AERONET methodologies, based on data obtained at Beijing. Second, a case study in Beijing using the SKYNET data only, for a limited period.

General comments: the article has some interest given the importance of the comparisons between AERONET and SKYNET methodologies, from the point of view of homogeneity between networks. The authors list a number of previous papers devoted to comparisons between both networks. In this case, the comparison is made between AERONET version 3, and SKYRAD version 5 implemented in the SR-CEReS pack-

age, so the results are to some extent, new. However, I think there are some flaws that should be addressed before this paper was accepted for publication in this journal: First, the comparison should be improved by performing a more in deoth analysis of the retrieval differences; second, the example analysis of the episode should be discussed in the light of the different methods; or alternatively, removed or shortened, as to give emphasis to the comparison itself.

Abstract: the analysis of the winter episode has too much weight given the article title. I would expect to focus the paper more on the comparison itself.

Line 94-96: Given the different versions co-existent, it would be good to make clear the current choices available. In this sense, the original skyrad version was not 4.2 but previous.

Line 161: if the differences are given in %, then the definition of the MBD cannot be (mean_aeronet - mean_skynet). Please define properly. Do you mean you first compute the mean value for all the aeronet and skynet datasets separately and then compare with the MBD? Or do you compute the differences for every pair of coincident data, and then perform the mean? The discussion of the correlation coefficient is not enough so I would recommend to include other statistical parameters such as RMS.

Lines 170-174: the discussion about the Angstrom exponent should be analysed in more depth, for example the exponent is highly uncertain for low AOD. This should be taken into account in the analysis and/or discussion.

Line 189: the sensitivity tests performed are of interest for SKYNET users. I think the authors should give more emphasis on these results than in the analysis of the episode. How could the comparison improve by finding an effective SVA? Would be the results consistent with Kathri et al 2016?

Figures 4 and 5: values of SKYRAD lying on the 1 and 0 axis are probably due to by-default values in case of good retrievals and should perhaps be removed.

Line 221: I don't think the linear correlations are clear. The deviation of points relative to the fitted line is high.

Line 225: the comparison of size distributions could also be studied with more detail, for example depending on the radius bands, or depending on the type of aerosol present. Comparison to nominal uncertainties would be informative.

Section 3.2: I understand to include the analysis of an episode to demosntrate the uselfulness of the SKYNET retrievals, however, I think more effort should be put in the comparison than in the example analysis. Possibly a comparison with the AERONET data during the episode should be included too.

Line 301: negation correlation should be negative correlation

Section 4. The discussion section looks redudant. It should be included in the results or conslucions.