Interactive comment on "Collocation Mismatch Uncertainties in Satellite Aerosol Retrieval Validation" *by* Timo H. Virtanen et al.

Anonymous Referee #2

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General comments:

The study compares satellite-based data from AATSR and MODIS to intensive ground-based data from the DRAGON phase in 2011 of the larger DISCOVER-AQ campaign, investigating the sensitivity of the comparison to the sampling parameters used to make collocations. Defining satellite data to be collocated if it falls within a spatial radius and temporal interval near a given ground site, the study found a sweet spot in which the sample is large enough to overcome random noise while remaining representative of the point data. All efforts to use ground-based sensors to validate satellite observations rely on similar parameter decisions, so the systematic approach in this study is helpful to a broad audience. The paper is well organized and easy to follow. Here are my specific comments.

Specific comments:

1. Figures in general have small text, which makes the legends difficult to read at the size they appear in the manuscript. Consider increasing the font sizes.

2. Page 6, lines 20-33. How does the range of the parameters used for previous work compare to the range used in this study?

3. Page 10, lines 6-7. Minimum sample number is another parameter that affects collocations. Do you know whether it's sensitive to the number of satellite pixels needed to form a match?

4. Page 14, line 11. The systematic positive bias in the MODIS data is specific to Terra, and discussed in Levy et al. (2013).

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