

Interactive comment on “Investigations into the Development of a Satellite-Based Aerosol Climate Data Record using ATSR-2, AATSR and AVHRR data” by Yahui Che et al.

Anonymous Referee #2

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Review of “Investigations into the Development of a Satellite-Based Aerosol Climate Data Record using ATSR-2, AATSR and AVHRR data” for Atmospheric Measurement Techniques. This paper try to discuss the feasibility of using AVHRR to continue the aerosol optical depth (AOD) record from AATSR ending in 2012 to SLSTR starting at 2016 over Beijing-Tianjing-Hebei region. The study is relevant and the potential product will benefit the aerosol community. However, there are some major issues that need to be addressed before it is suitable for publishing.

1. The reason author chooses to use AVHRR is because not only can this data bridge the gap between AATSR and SLSTR but also it can extend the data record to 1983.

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This idea is presented in introduction, but there is only one plot Figure 8 shows the AVHRR data before 2000. All other analyses are focused between 2000 to 2012. I think if we only consider this 2000-2012 period of time, there are a lot more aerosol products that can be used with much lower uncertainties. Thus, more analyses are needed to understand AVHRR through the entire data record or empirically correct AVHRR data to make it more suitable for a long term data record. 2. This is a paper about continue data from AATSR to SLSTR. But I didn't see a session in data talking about SLSTR. 3. The author uses a very large portion of paper introducing aerosols and their facts. It is really not to the point of this article. Please make the introduction more concise. 4. To me it makes more sense to validate the radiance retrieved AOD against AERONET. Or maybe against MODIS to show the sampling bias. Then rely on radiance retrieved AOD to validate everything else consistently from 1983 to current. 5. The title doesn't indicate the study region.

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