We thank the reviewer for his/her comments and suggestions.

The subject of the paper is relevant for AMT and points out a very important issue. Nevertheless, after reading it, I am not sure that the title is appropriate and I am still wondering what should be the actual objective of the paper.
The paper is focused on a comparison between MODIS (DT and DB methods) and MISR aerosol products. Figure 1 is very interesting but when the authors say that it shows reasonable correlations between retrievals, I disagree. Both sensors are in fact providing different AOD's for several sites and it is also confirmed at global scale on Figure 2. I think that there are enough data to analyze/understand the differences and propose explanations/solutions. There were previous studies (Mishchenko et al., 2010) that presented similar trends; Kahn et al. (2011) made several suggestions to clarify the situation. Are they today sufficient? I know that there is a controversy between the teams but the present work can contribute to the debate. It looks to me that the authors cannot ignore the corresponding papers; they should be at least quoted.

I think that a deep analysis of the algorithms is first needed. Can we expect to have a better consistency between the data sets over AERONET sites? How can we improve the satellite inversions? I am not convinced we currently need additional measurement as long as the present discrepancies are not fully explained. First of all, the two data sets have to be made consistent; then if differences still occur, it means that the aerosol properties over the corresponding areas are unusual. In that case, AERONET measurements are required for expending the aerosol database.
The paper is well written and could be published after minor revisions (I am not going to duplicate the very detailed comments of the two other reviewers). It contains interesting results; nevertheless, considering papers published previously, it does not address the key issue. Adding AERONET sites will not reduce the discrepancies that already exist between the two data sets. The authors have to be careful for not sending a misleading message.

Thank you very much for the suggestion. We have made a very conscious effort to support the debate through providing independent verification data such that developers can make better products in the future. We are well aware of the science of retrievals, but both the science and politics of current climate make making a single all encompassing and resolving paper unfeasible. We acknowledge that even over AERONET sites satellite retrievals from different products do not necessarily agree with each other, as shown by Figure 1 of this study and by other published research studies. Indeed, the community is starting to have a better understanding of the differences among satellite retrievals around AERONET sites. For example, some of the differences can be attributed to high bias in MODIS retrievals over bright surfaces [Kahn et al., 2010; Hyer et al., 2011], and low bias in MISR retrievals over land [Kahn et al., 2010]. Improvements are made based on validation studies against AERONET data, or even by directly ingesting AERONET data into the aerosol retrieving algorithms [e.g. Levy et al., 2006]. This makes the AERONET dataset an extremely valuable asset for satellite aerosol studies. We are expecting the community to

continue the efforts of ironing out discrepancies among the satellite products with the use of in situ and AERONET data.

This study, in part, goes beyond the efforts of validating satellite aerosol products using AERONET data. AERONET data have been and will continue to be used as a golden standard for validating satellite AOD retrievals. Here, we are trying to point out that large variances exist for the performance of satellite retrievals at and away from existing AERONET sites. Efforts are needed for understanding and exploring such an issue as it is critical to users, especially to modelers using data assimilation. We have seen several recent papers assimilating aerosol otpical depth, which attribute sources and sinks to regions of clear AOD bias. Such biases need to be understood and ultimately removed, either empirically or through the development of a better retrieval. We see this paper as a critical first step in this process. That is, identify where we have correlated error in the hopes that other researchers can make the in-situ measurements necessary to understand them. The specific association of this paper to AERONET is a reflection that this network truly is the best available source of verification data. This said, as we point out, there are whole regions of high AOD and significant diversity in satellite products without any form of regional verification. Take for example Central/Southern Africa. Often Mongu is used as the verification for this region which hosts the highest biomass burning prevalence in the world. Yet, Mongu is actually on the edge of the plume. Further, Mongu does not even exist as a site anymore. We as scientists need to voice our opinions as to where we need verification data, and this should be done in the peer reviewed literature as we are doing here.

We have modified the title to "A critical examination of spatial biases between MODIS and MISR aerosol products—application for potential AERONET deployment". We also included references, as suggested by reviewers. Two papers were cited in the paper on Page 4398 Line 10: citations for Mishchenko et al., 2010 and Kahn et al. (2011) were added after "may lack ground-based observations."

To Page 4314 Line 31 we added: "Mishchenko, M.I., L. Liu, I.V. Geogdzhayev, L.D. Travis, B. Cairns, and A.A. Lacis, 2010. Toward unified satellite climatology of aerosol properties. 3. MODIS versus MISR versus AERONET. J. Quant. Spectro. Rad. Transf. 111, 540-552, doi:10.1016/j.jqsrt.2009.11.0003."