

Reply

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In comments on the paper by Satheesh and J. Srinivasan (2006, hereafter SS06), Ramachandran (2008, hereafter R08) states that “However, the same methodology has been published by Ramachandran and Jayaraman (2003).” We would like to state that this assertion is completely wrong.

Ramachandran and Jayaraman (2003, hereafter RJ03) used the software package Optical Properties of Aerosols and Clouds (OPAC; Hess et al. 1998) to derive the aerosol optical depths (by varying the number densities of various aerosol species) and compared them with the measured ones. The methodology followed in RJ03 was not a new one. We have been using this approach much earlier (since 1999) than RJ03 (see, e.g., Satheesh et al. 1999; Satheesh 2002; Babu et al. 2002). Surprisingly, RJ03 have used this methodology from our earlier papers but did not acknowledge this fact. It may be noted that Figs. 2 and 3 in RJ03 uses the same concept followed by Satheesh et al. (1999) in their Fig. 6. Hence, the claim by R08 is unsustainable and unfortunate.

SS06 proposed a novel means to estimate aerosol radiative forcing (at locations where detailed aerosol characterization is not possible due to various constraints), based on spectral aerosol optical depth measurements. Even though SS06 used OPAC for sensitivity analysis, the proposed method is not dependent on OPAC, as SS06 state, “The assumed initial composition has no impact on the final result, but minimizes the number of iterations required.” The method proposed in SS06 is an extension (and much more refined) of the approach employed in our earlier works (e.g., Satheesh et al. 1999; Satheesh 2002; Babu et al. 2002).

In addition, we have demonstrated (in SS06) the ap-

plication of the method to distinguish between scattering and absorbing aerosols and to estimate radiative forcing. In addition, SS06 validated the approach using data from several sites. Still, we made it explicit in our paper that “this method is not a substitute for the measurement of aerosol chemical composition, but a method to estimate aerosol radiative forcing over regions where aerosol chemical composition or sky radiance data are not available.”

In the conclusions, SS06 discussed the advantages and disadvantages of the proposed method. The other comments by R08, several of them repetitive, are only an elaboration of this discussion. To respond to the last comment by R08 we would like to state that Eck et al. (2001) compare their Indian Ocean data with that of Zambian International Biomass Burning Emissions (IBBE) Experiment, which we have discussed in SS06. Aerosol observations at Maldives reported in Eck et al. (2001) were made when one of the authors of SS06 (SKS) was present at Maldives and hence well aware of this fact.

In summary, the method used in RJ03 is *not* different from what has been published in our earlier papers (e.g., Satheesh et al. 1999; Satheesh 2002; Babu et al. 2002). Surprisingly, RJ03 have used this methodology but did not mention earlier works. Hence the claim by R08 is unsustainable and unfortunate.

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