

Interactive comment on “Contrasting aerosol trends over South Asia during the last decade based on MODIS observations” by D. G. Kaskaoutis et al.

Anonymous Referee #1

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I agree with the first reviewer that satellite data products are not the most reliable in studying aerosol trends as algorithm and sampling biases could significantly affect results. If use of satellite data is desired and justifies, as the paper attempts to study the spatial trend distribution, then more than one satellite sensor should be used, and ground-based measurements should be incorporated if possible. Currently the data during their study's time period is available from MISR in addition to MODIS Terra, and almost 9 years of observations are available from MODIS Aqua. It should be noted that globally, MODIS Terra is currently showing artificial negative aerosol optical depth (AOD) trends over land as reported by a number of MODIS team presentations (see for

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example, Steve Platnick and Rob Levy, MODIS Atmosphere Solar Reflectance Issues, MODIS 2011 Meeting). Therefore trends derived from MODIS Terra alone might not reflect realistic decadal aerosol changes and variability. The paper results should be re-examined with additional satellite and ground-based data.

General comments:

1. The 1-degree grid is too large for the regional study over South Asia. The quality-checked and 0.25-degree gridded Level 2 data should be used as the Level 3 products produce smoother appearing maps that can easily mask large point sources (e.g., industrialization, large metropolitan areas).
2. The decreasing trend explanation related to dust activity should be examined with MODIS Deep Blue and MISR data over the Thar Desert.

Interactive comment on Atmos. Meas. Tech. Discuss., 4, 5275, 2011.

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