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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Aerosol optical depth trend over the Middle East" *by* K. Klingmüller et al.

Anonymous Referee #1

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The manuscript presents an analysis of trends in the aerosol optical depth and other variables over Iraq, Iran, and Saudi Arabia from 2000 to 2015, which can be mostly ascribed to changes in the dust load over the region in the time period. Using the tool of multiple linear regression, a first analysis of attribution of the trends to soil moisture, precipitation, and surface wind speed is provided too. The authors use multiple updated data sets and sound methodology. The whole paper is straightforward and very well written, and the conclusions are convincing. The results are new, relevant, and appropriate for the journal. I only have one point to make, which should be addressed, before publication:

On page 5, the authors estimate the AOD trend by fitting a linear model, taking into account the autocorrelation with a time lag of one months. How was it determined that this choice was sufficient to take autocorrelation into account? Did the authors test the autocorrelation structure of the residuals for different time lags, whether it approximates

the one of white noise? I recommend to add such a test to the manuscript.

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