

## Replies to Referee comments

*On “Interactive comment on “Spatio-temporal aerosol optical characteristics over the Arabian Sea during the pre monsoon season” by D. G. Kaskaoutis et al.*

### For Anonymous Referee #3.

The results presented are useful. The presentation lacks generally clarity. There are numerous grammatical mistakes, often obscuring the meaning.

**Reply: We thank the reviewer for the summary evaluation. We have tried now few changes in view of clarity and concise presentation for reader's prospect in mind. The manuscript has been thoroughly modified in several parts and grammatical mistakes are corrected..**

Specific comments:

1. The title is inappropriate and needs to be changed. “optical characteristics” is rather broad. Optical characteristics like refractive index and absorption coefficient are not dealt with in this study.

**Reply: The title has been changed as “Heterogeneity in pre-monsoon aerosol types over the Arabian sea, deduced from shipboard measurements of spectral AODs”.**

2. Page 22230: line 25: ‘ : : : this method is least imprecise..’ is rather a strong statement. Not warranted.

**Reply: We agree and have removed this statement**

3. Page 22230: lines 20-25: Two or three typical plots of AOD vs. wave length may be shown along with the best fir Angstrom equation (equation 1) and second order polynomial (equation 2).

**Reply: In the revised version we included the Figure 2(a-c) showing three typical plots of the spectral AOD variation in log-log plot.**

4. Equations 3-6: What is the meaning in relating errors in the coefficients of equation 2 with the Angstrom exponent in equation 1. Incidentally the correlation between them is low.

**Reply: We agree that the correlation is low and this part of the text has been corrected. These correlations show that the errors in a1 and a2 retrievals are in general larger for increasing  $\alpha$ . However, their correlation is not as high as that between errors and AOD (see Fig. 2). Regarding the meaning of the correlations there are the appropriate references in the text and in the revised we discussed them in more detail.**

5. Figs 4&5 may be omitted as these do not carry any meaning.

**Reply: In the revised version we have removed these figures.**

6. Page 22235: while comparing the results of AOD and Angstrom exponent in this study with those from literature, it will be appropriate to mention the period (season etc) to which these correspond.

**Reply: We have taken care of this in the revised version.**

7. Page 22236: lines 24-28: Coast length of >7500km covers both east and west coasts. The figure 40% population living in the coastal belt should be checked.

**Reply: This sentence has been removed in the revised version, as there are no authentic references available.**

8. The values of AOD and coefficients in equations 1&2 are quoted up to three decimal places. Two decimal places are enough.

**Reply: We agree and in the revised we use two decimal points.**

9. The paper appears rather long for the scientific content. It should be considerably shortened (especially sections 4-8)

**Reply: We have shortened the manuscript removing some parts of lesser importance and avoiding some repetitions.**