

Interactive comment on “Temporal and spectral variation of desert dust and biomass burning aerosol scenes from 1995–2000 using GOME” *by* **M. de Graaf et al.**

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General comments

Referee #2 is thanked for the careful review of the manuscript. The referee acknowledges the uniqueness of the presented method and the reported difficulties. The main limitation is the weak conclusion about the validity of the method. This was changed in the new manuscript, which now clearly states that the method does not work over land where surface albedo controls the results, and not the aerosol loading. Bright surface reflection will always control the results and the method should be abandoned, which is now clearly concluded in the new manuscript. As an alternative the use of reflectances with a high spectral resolution, as provided by GOME, SCIAMACHY and OMI, may reveal spectral aerosol features.

Answers to specific comments of referee #2

Section 3.1, Figure 2:

(i) The referee is right in his observation. Over Europe a maximum residue is found, instead of a minimum. This was changed in the new manuscript.

(ii) Again the referee is right in his observation. Forest fires occur mainly during the summer months, and it is not an explanation of the observed maximum residue during the winter.

Figure 2

The noise in the signal in the year 2000 over Hong-Kong is indeed caused by radiometric degradation of the instrument, as stated in the manuscript. It is not absent in other regions, all regions show enhanced noise in the signal during 2000, but it is not as clear as for Hong Kong and SW-Africa. The reason is probably that the Hong Kong region has the smallest horizontal dimension, so the noise is less averaged out than in other regions.

Technical corrections:

The references now appear in the main text.

The double sentence has been suppressed.

Interactive comment on Atmos. Chem. Phys. Discuss., 6, 1321, 2006.

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