

## ***Interactive comment on “Seasonal distribution of aerosol properties over Europe and their impact on UV irradiance” by N. Y. Chubarova***

**Anonymous Referee #3**

Received and published: 26 September 2009

This is an excellent paper that sets new standards in the quantification of the aerosol influence on the UV irradiance. The topic, the methods and the conclusions are clearly described. The following items should be checked or corrected:

1. At the very end of the conclusions it is stated: “In addition, at high latitudes the  $Q_e$  variations due to aerosol are much more pronounced and can significantly influence the  $Q_e$  year-to-year variability, that should be taken into account while revealing the ozone component in  $Q_e$  long-term trend”. This statement does not take into account the methods using spectral data for trend detection. When using such methods the aerosol influence can be separated from the ozone influence due to its different wavelength characteristics. Therefore the statement needs to be modified. An analysis of the possibilities of UV trend detection can be found for example in “Glandorf M., Arola A.,

C549

Bais A., Seckmeyer G.: Possibilities to detect trends in spectral UV irradiance, Theor. Appl. Climatol., DOI 10.1007/s00704-004-0109-9, 2004”. 2. The validation of the model by measurements with a broadband sensor is not ideal. Instead spectral measurement are to be preferred. In any case the author should discuss findings of other authors on the relationship between aerosol optical depth and UV attenuation and should analyze the consequences for the derived aerosol influence taking into account the uncertainty of the relationship between aerosol optical depth and UV. Especially different single scattering albedo may lead to different conclusions. 3. The figures may be partly too small. The author and the editor should check that and should provide more readable figures

Summary: Congratulations to an excellent paper!

---

Interactive comment on Atmos. Meas. Tech. Discuss., 2, 1863, 2009.