

Supplement to:

Evidence of a possible turning point in solar UV-B over Canada, Europe and Japan

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Unfortunately, spectroradiometric measurements of AOD from the ground were not available from all examined stations, and therefore we selected to use MODIS AOD which provides global coverage of AOD at 550nm.

To examine whether trends from MODIS correlate well with trends from the ground we selected to study AOD trends at two stations which provide AOD at 320 nm, Thessaloniki and Lindenberg. For Thessaloniki we compared monthly means from daily coinciding pairs whereas for Lindenberg we compared monthly means which were calculated independently if the daily pairs coincided or not. In both cases the results showed that there are statistically significant correlations between AOD changes at 550nm and 320nm at confidence level greater than 99.9% ($r = +0.8$ for Thessaloniki; $r = +0.6$ for Lindenberg). Linear trends in AOD for Thessaloniki were estimated to be -2.6% per year from MODIS (550nm) and -2.2% per year from the ground (320nm). For Lindenberg, the respective trends were estimated to be -5.6% per year from MODIS (550nm) and -4.3% per year from the ground (320nm). Differences in trends between the two data sets were not found to be statistically significant at the 0.05 level. According to these findings we were convinced that the trends in AOD at 550nm were in the same direction with the trends at 320nm, and as such we selected to use the AOD from MODIS from which we had available data for all examined stations.

Figure S1 shows MODIS-derived AOD changes at 550nm in comparison to ground-based AOD changes at 320nm at Thessaloniki (upper panel) and Lindenberg (lower panel).

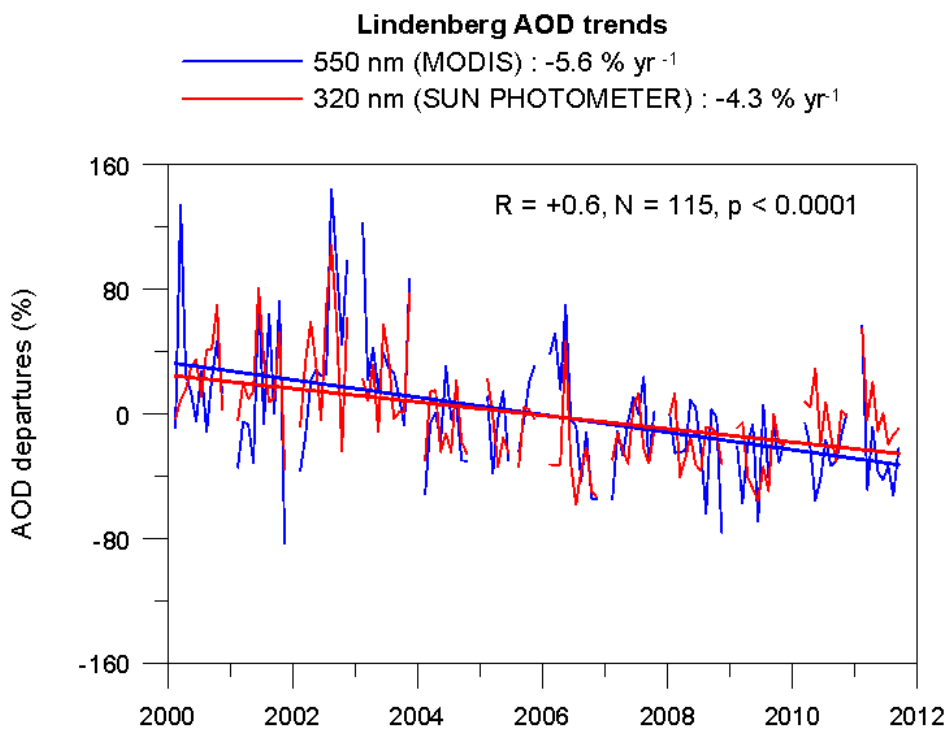
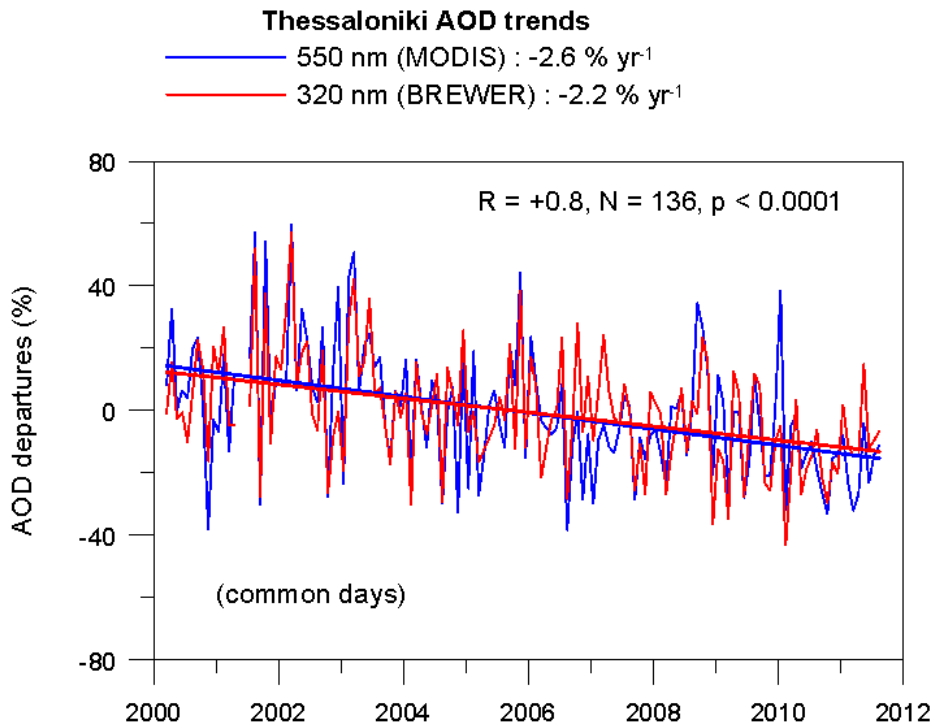


Figure S1. Comparison of satellite-derived AOD trends at 550nm with trends from ground-based measurements at 320nm over Thessaloniki (upper panel) and Lindenberg (lower panel). Differences in trends between the two data sets are not statistically significant at the 0.05 level. R is the correlation coefficient between the two lines. For Thessaloniki, monthly means were calculated from common daily observations.