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Spatio-temporal variation of Aerosol Optical Depth over Greece based on 5-years OMI observations

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The Aerosol Optical Depth (AOD) observations at 483.5 nm derived from the Ozone Monitoring Instrument (OMI) on board the Dutch-Finnish Aura satellite are analyzed over Greece, covering the period from January 2005 to December 2009. The AOD483 data cover the whole Greek territory (34o-42o N, 20o-28o E) with a spatial resolution of 0.25o x 0.25o.

The results showed significant spatial and temporal variability of the seasonal and monthly mean AODs, with higher values over the continental regions, the northern part of Greece and around the major urban centers (Athens, Thessaloniki). On the other hand, enhanced AOD values were observed over Crete Island and southern Greece during periods of increased dust episodes, such as spring.

The larger AOD values ($\sim$0.45) appeared in spring and summer, while the lower (0.2-0.25) in late autumn and winter. The OMI AOD483 values significantly overestimated those obtained from MODIS at 550 nm, and the difference in the wavelength could not justify such a large discrepancy. The differences between OMI and MODIS AODs were $\sim$0.1-0.2, while similar differences were also observed between OMI and ground-based retrievals over the Greek AERONET sites (Crete, Thessaloniki and Athens).