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A 1-year remote sensing study of radiative effects of aerosol and clouds over the NE Mediterranean

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The direct aerosol and cloud radiative forcing over the Aegean Sea is investigated using one year of almost continuous observations of aerosol optical properties, cloud data and CERES satellite short-wave and long-wave fluxes during 2005-2006. AOD values from MODIS over the Aegean Sea are found to be high during summer and spring months. This period of the year, reach in fine aerosols, the air masses are coming predominantly from the Eastern part of Europe. An apparent aerosol weekly cycle with lower values during the weekend as well as a cloud fraction weekly cycle with lower values during the weekend is observed over the Aegean Sea, which, if confirmed, could result together in net TOA forcing of around -20w/m2. The monthly mean aerosol radiative forcing over the Aegean Sea resulted in net cooling and ranged from -6 to -15.8 W/m2 within the range of results from previous studies. The Cloud Radiative Forcing was also characterized by net cooling and ranged from -23 to -84 W/m2.