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## Study of the effect of different type of aerosols on UV-B radiation from measurements during EARLINET

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**Abstract.** Routine lidar measurements of the vertical distribution of the aerosol extinction coefficient and the extinction-to-backscatter ratio have been performed at Thessaloniki, Greece using a Raman lidar system in the frame of the EARLINET project since 2000. Co-located spectral and broadband solar UV-B irradiance measurements, as well as total ozone observations, were available whenever lidar measurements were obtained. From the available measurements several cases could be identified that allowed the study of the effect of different types of aerosol on the levels of the UV-B solar irradiance at the Earth's surface. The TUV radiative transfer model has been used to simulate the irradiance measurements, using total ozone and the lidar aerosol data as input. From the comparison of the model results with the measured spectra the effective single scattering albedo was determined using an iterative procedure, which has been verified against results from the 1998 Lindenberg Aerosol Characterization Experiment. It is shown that for the same aerosol optical depth and for the same total ozone values the UV-B irradiances at the Earth's surface can show differences up to 10%, which can be attributed to differences in the aerosol type. It is shown that the combined use of the estimated single scattering albedo and of the measured extinction-to-backscatter ratio leads to a better characterization of the aerosol type probed.

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