Desert dust observations in the urban environment of Rome during 2006-2009

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The impact of the long-range transported aerosol from desert on the seasonal evolution of the tropospheric aerosol vertical distribution and of its optical properties in Rome is investigated by means of three years of Lidar and Multi-Filter Rotating Shadow-band Radiometer (MFRSR) observations.

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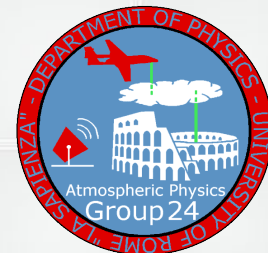
Two classes of aerosols are identified using the HYSPLIT model: cases affected by Saharan dust (class1) and cases not influenced by dust (class0).

- average vertical profiles,

- Lidar Ratio,

- the column-integrated optical properties (Aerosol optical depth at 500 nm and Ångström exponent)

One of the main result of this work is that it is not possible to neatly identify the dust cases from the column-integrated optical properties because of the strong contribution of particles locally produced in the urban environment, while the average vertical profiles exhibit a stronger seasonal behavior of the desert dust compared to the non-dust cases

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