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Preliminary analysis of aerosols optical properties at the coastal site Lamezia Terme, in central Mediterranean area, integrating data of different instruments

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Short lived gases and atmospheric aerosol particles, according to the IPCC (2013), are playing a major role in the global warming and climate change. In fact, they affect the Earth's radiative balance: directly by absorbing and scattering of solar radiation and indirectly by supporting for cloud condensation. In this study we investigate a continuous measurements, in real time, in order to characterize the optical proprieties at coastal site Lamezia Terme (38,88 LAT 16,24 LON, 6m above sea level) in Calabrian Region, for one year period, using integrating Nephelometer and a Multi-Angle Absorption Photometer (MAAP) instruments. We study the annual and diurnal evolution of the scattering coefficient, Sc(λ), The Back Scatter coefficient, BSc(λ), the scattering Ångström exponent, Å, the backscatter ratio, b, absorption coefficient of Black Carbon (BC) and Single Scattering Albedo, SSA. The average values over the period analysed of the Sc, BSc, Å are respectively (Sc=37$\pm$16 Mm^{-1}(λ=550nm), BSc=5$\pm$2 Mm^{-1}(λ=550nm), Å=1.5$\pm$0.2 ((700/550)nm). The influence of meteorological parameters on the aerosol scattering properties are also analysed. Decreases in SSA are observed when the wind blow from the sector characterised by local pollutant sources and during hours of the increased traffic density. In this study significant correlation coefficients are found between different aerosol optical properties.