Supplementary Materials: Black Carbon Aerosol in Rome (Italy): Inference of a Long-Term (2001–2017) Record and Related Trends from AERONET Sun-Photometry Data

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This document presents supplementary materials for the article: "Black Carbon Aerosol in Rome (Italy): Inference of a Long-Term (2001–2017) Record and Related Trends from AERONET Sun-Photometry Data".

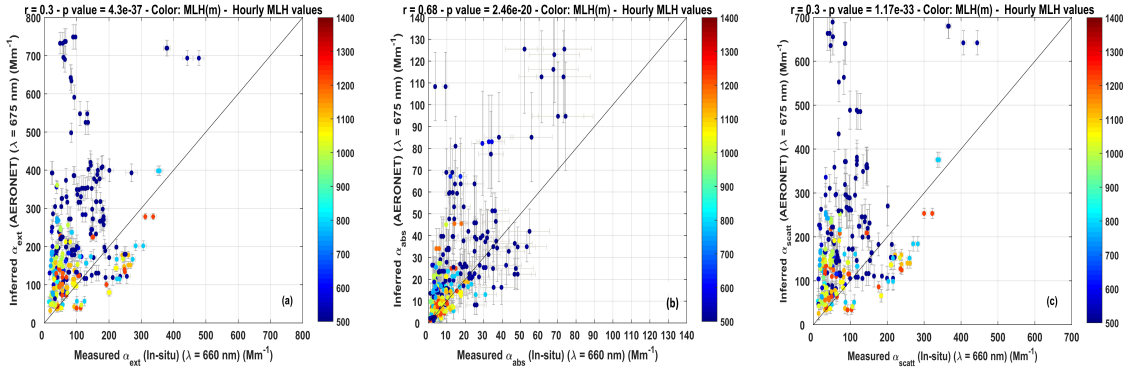

Figure S1. Scatter plots of: (a) α_{ext}, (b) α_{abs} and (c) α_{scatt} in–situ measured (x–axis) vs inferred from AERONET measurements (y–axis) for hourly MLH values before the application of the screening scheme. Color of the markers indicates the hourly MLH values (m). Black line is the 1–to–1 line. $\pm$15 min average values of α_{ext}, α_{abs} and α_{scatt} are used (321 points).

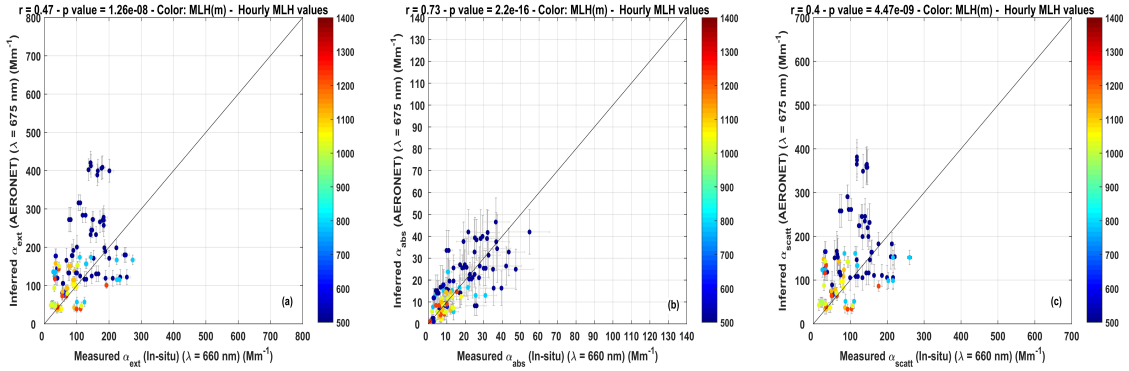

Figure S2. Scatter plots of: (a) α_{ext}, (b) α_{abs} and (c) α_{scatt} in–situ measured (x–axis) vs inferred from AERONET (y–axis) for hourly MLH values after the application of the screening scheme. Color of the markers indicates the hourly MLH values (m). Black line is the 1–to–1 line. $\pm$15 min average values of α_{ext}, α_{abs} and α_{scatt} are used (121 points).

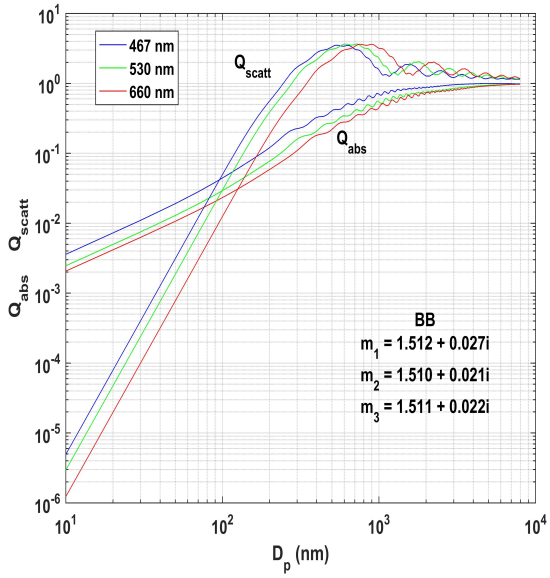

Figure S3. Simulation of the absorption (Q_{abs}) and scattering efficiency (Q_{scatt}) with varying particle diameter (D_p) at three wavelengths (467 nm, 530 nm and 660 nm).

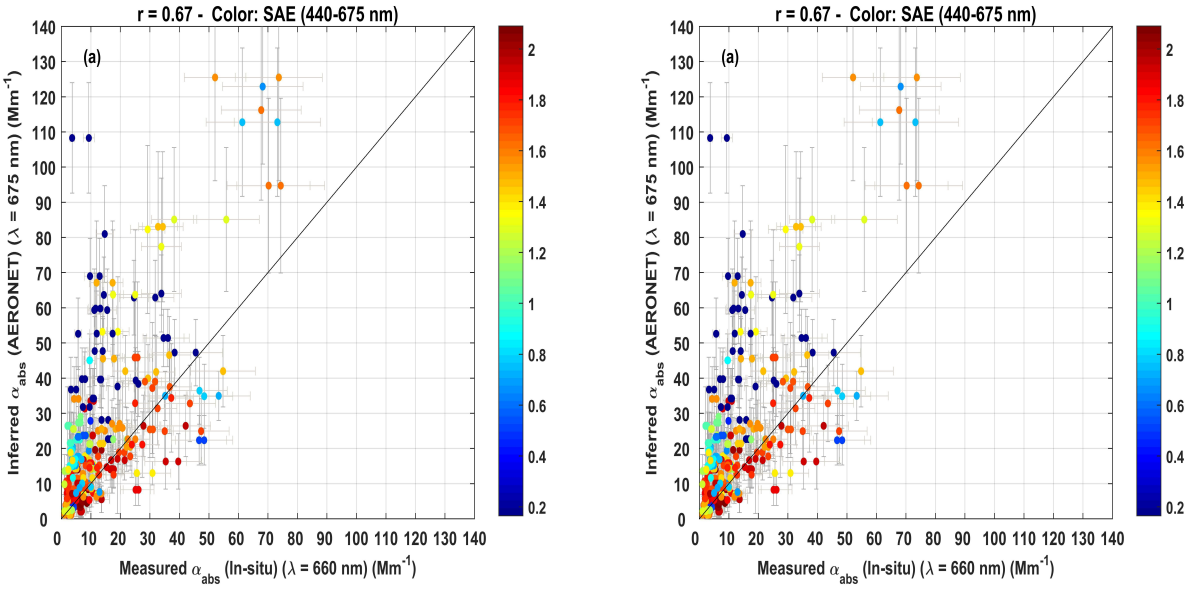

Figure S4. Scatter plots of: (x–axis) surface α_{abs} obtained from in–situ measurements, (y–axis) α_{abs} obtained from AERONET data. The color code in panels shows the Scattering Ångström Exponent (SAE) values at 440 and 675 nm. Black line is the 1–to–1 line. ±15 min average values are shown. Panel (a) shows all data (321 points), panel (b) shows data after the application of the screening scheme (121 points).

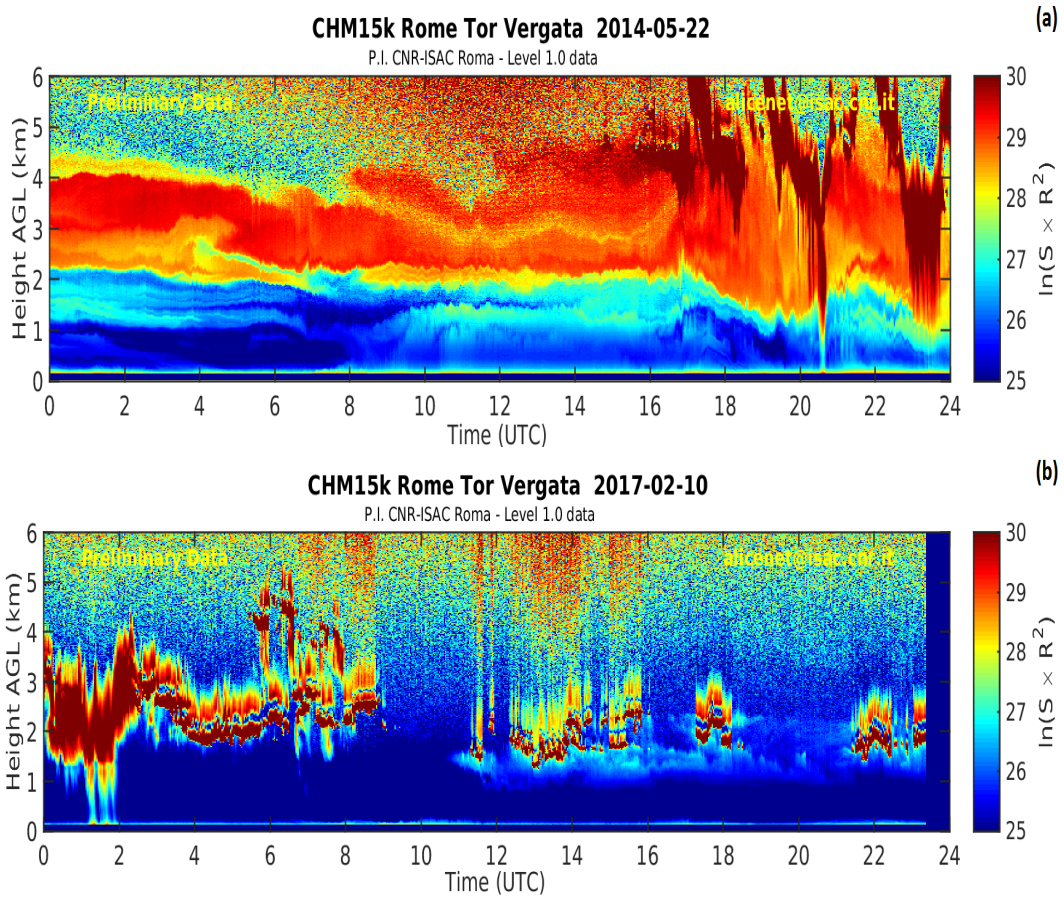

Figure S5. Detection of the Saharan dust with the lidar-ceilometer based at the site of Rome Tor Vergata during the 22th May 2014 (a) and 10th February 2017 (b): average range-corrected backscatter signal intensity as a function of time and height above ground level.