

Interactive comment on “Physical and optical properties of atmospheric aerosol by in-situ and radiometric measurements” by M. Calvello et al.

Anonymous Referee #1

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General comments: The paper focuses on the physical and optical properties of atmospheric aerosols collected in South Italy, by in-situ and radiometric measurements using spectroradiometer, DLP impactor and AE-31 Aethalometer, and provides rich data and corresponding analyses. The manuscript gives some interesting results of ground-level mass size distributions for different aerosol types, columnar properties of dust, back-ground and marine and polluted/smoke and their partition by AOD vs. Angstrom parameter, and comparison between ground and columnar size distributions. On a whole, it is relatively well written and straightforward. But, I don't believe the manuscript ready for publication, and it needs some revision before acceptance.

Specific comments: 1. Line 7 of page 25571, “. . .with a time resolution of 5 min at a flow rate of 3.91 lpm. . .”, The authors should verify the units of AE-31 model flow rate in

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‘lpm’ or ‘l/min’. 2. Line 9 of page 25571, “. . .cross section value of 16.6 m² g⁻¹ at 800 nm recommended. . .”, The authors should correct the recommended wavelength ‘800 nm’ for ‘880 nm’. 3. Line 21 of page 25574, “. . . with a maximum value of 0.37±0.01 on 08 July. . .”, But in table 2, the maximum of AOD 500 nm is ‘0.51±0.01 on 28 May’, not ‘0.37±0.01 on 08 July’.

Technical corrections or suggestions: 1. Title, ‘..aerosols..’ is better. 2. Line 2 of Abstract, ‘..13-stage..’ is better. 3. Line 23 of page 25566, ‘..to be responsible for..’ is better. 4. Line 2 of page 25567, ‘..in aerosol property retrieval..’ is better. 5. Page 25568, in line 5 and 18 ‘aerosols’ is better, in line 10 ‘..BC concentration measurements..’ is better, in line 26 ‘.. aerosol types’ is better. 6. Page 25569, in line 19 ‘aerosols have..’ is better. 7. Page 25571, in line 4 ‘..a seven wavelength Aethalometer..’ is better, in line 6 ‘Aerosols were..’ is better. 8. Page 25574, in line 16 ‘..properties of aerosols..’ is better. 9. Page 25575, in line 18 ‘..without heavy transport phenomena a part from air masses..’? 10. Page 25580, in line 21, 26, 27, 28 ‘..aerosols..’ is better.

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