

Interactive comment on “Continental pollution in the Western Mediterranean basin: large variability of the aerosol single scattering albedo and influence on the direct shortwave radiative effect” by C. Di Biagio et al.

Anonymous Referee #1

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Line 78: Change “. . . aerosol optical properties represents one the main source. . .” to “. . . aerosol optical properties represents the main source. . .”

Line 80: Change “In this sense, intensive studies providing with the characterization. . .” to “In this sense, intensive studies providing the characterization. . .”

Line 86: Rephrase “. . . which makes that anthropogenic. . .”, it doesn’t make sense as is.

Lines 461-520 (Section 4.4): Since you use the refractive index to derive the size distribution, it would be better to take this into account in your “optical closure” process: change the size distribution based on the retrieved refractive index and see if you

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achieve the optical closure for the new size distribution. If not, retrieve a new refractive index using the new size distribution and the measured optical properties, change the size distribution based on the new refractive index and continue the process until you achieve the closure. I think that especially the large range of the imaginary part of the refractive index should have a distinctive effect on the derived size distribution and, consequently, on your optical closure procedure. If not, please provide relevant evidence.

Lines 485-490: How do the retrieved values of n and k compare with the ones used to derive the size distribution from PCASP and GRIMM measurements? Provide a comparison in a plot.

[Interactive comment on Atmos. Chem. Phys. Discuss.](#), doi:10.5194/acp-2016-47, 2016.

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