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Atmospheric Chemistry and Physics Discussions

Supplement of

Chemical characterization of submicron regional background aerosols in the Western Mediterranean using an Aerosol Chemical Speciation Monitor

M. C. Minguillón et al.

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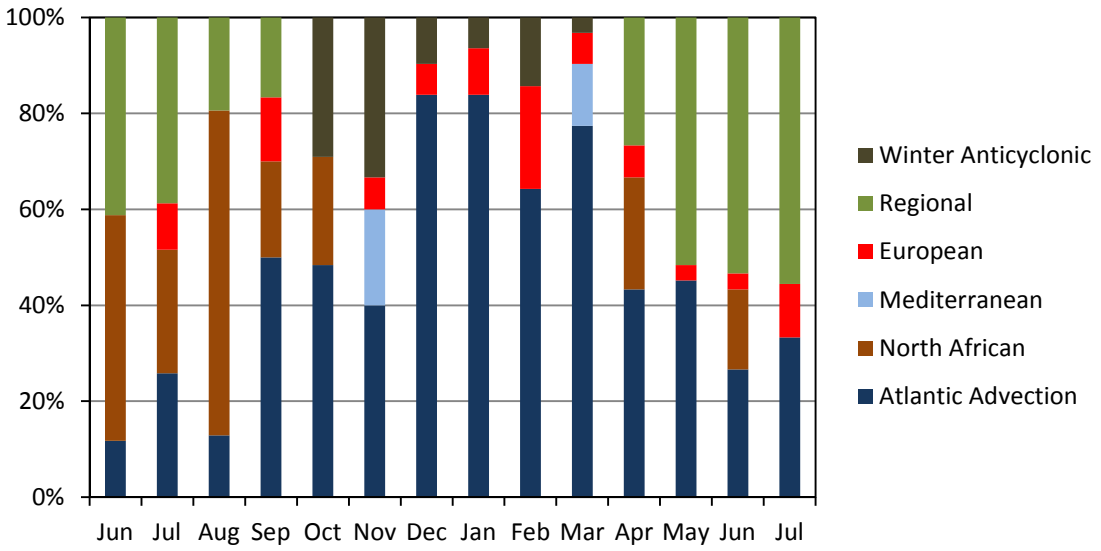


Figure S1. Frequency of type of scenario for each of the months of the study period.

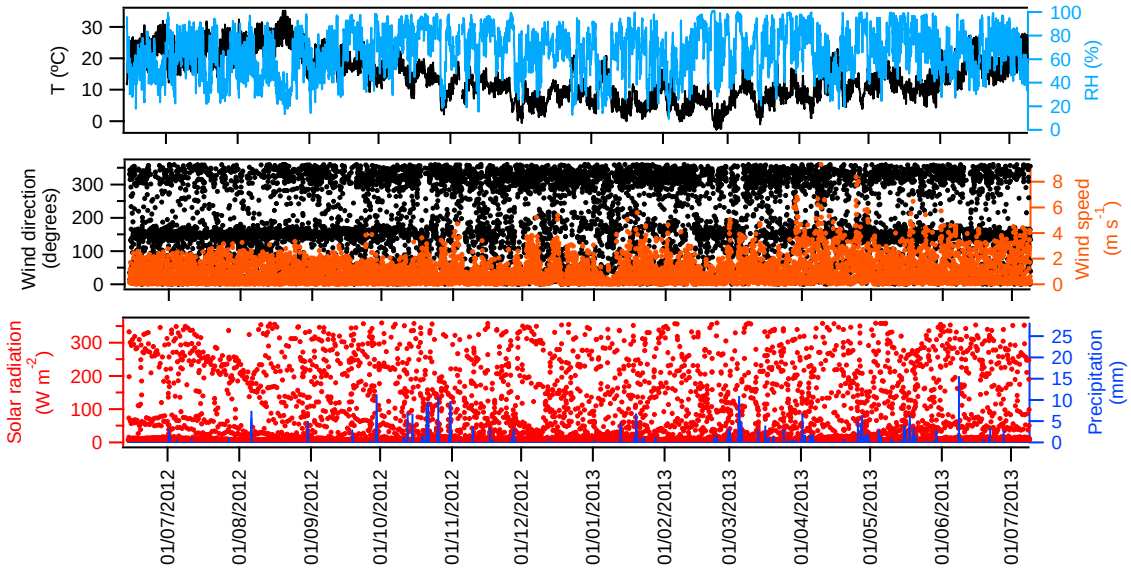


Figure S2. Hourly ambient temperature, relative humidity, wind direction and speed, solar radiation and precipitation at MSY during the study period.

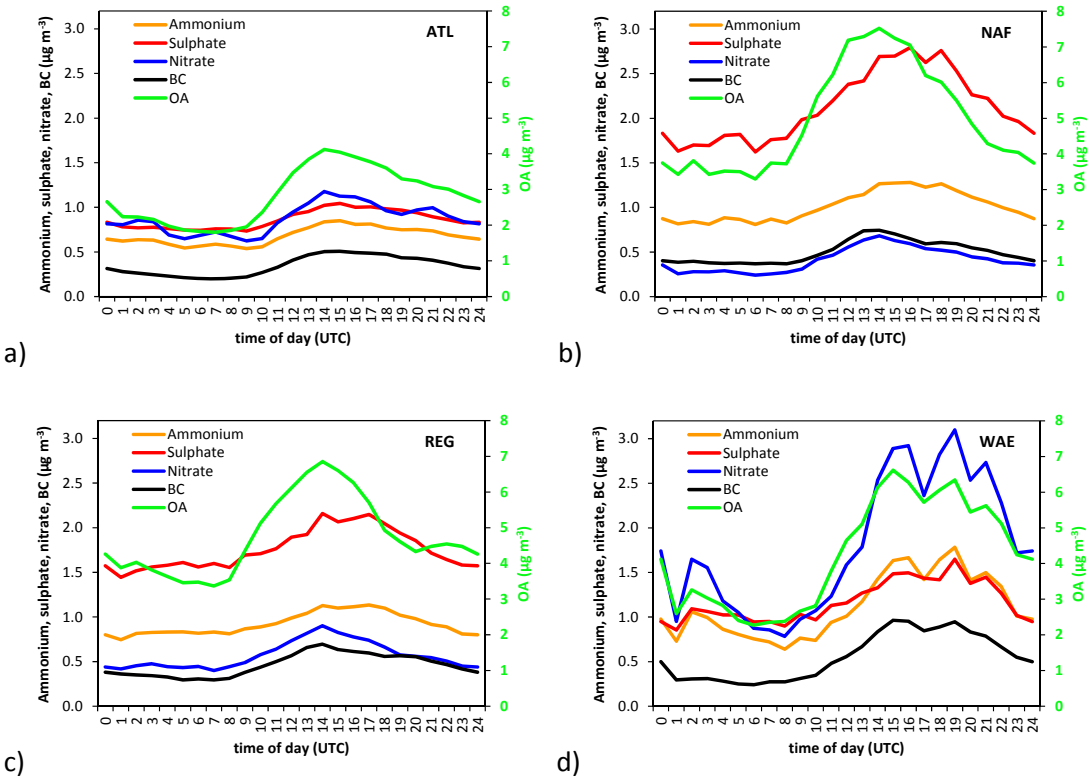


Figure S3. Average daily pattern for (a) Atlantic advections (ATL), (b) North African episodes (NAF), (c) regional episodes (REG), and (d) Winter Anticyclonic episodes (WAE). Note that OA is plotted in the right axis.

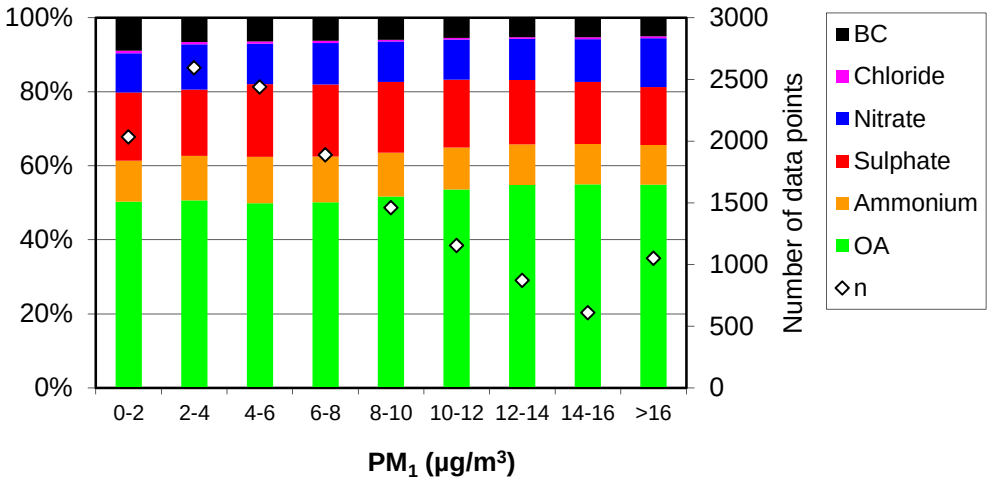
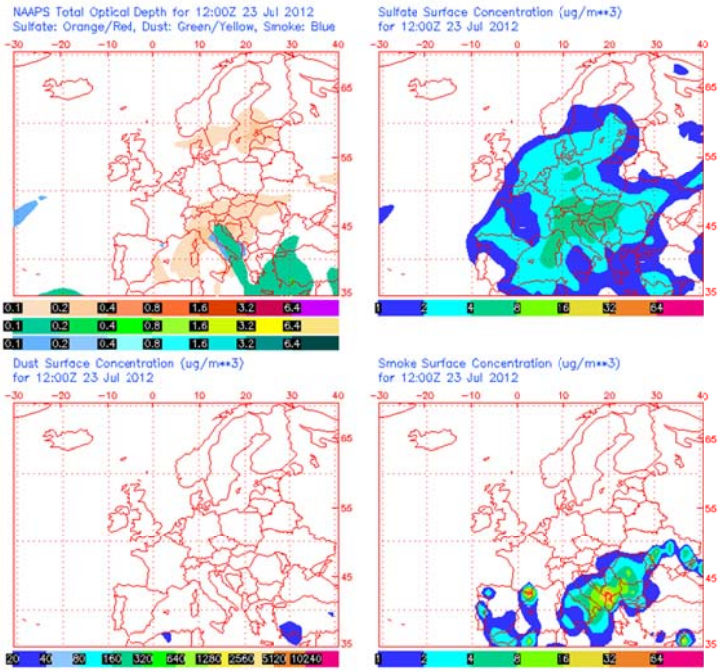
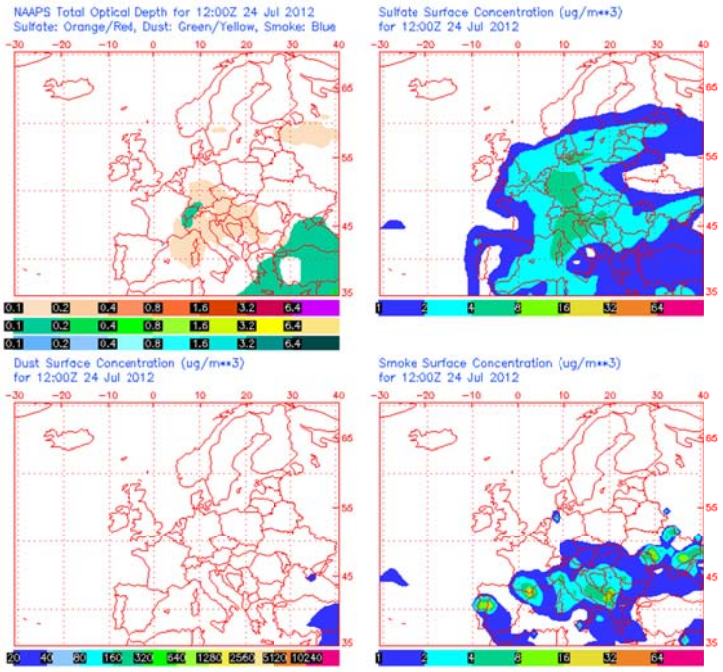


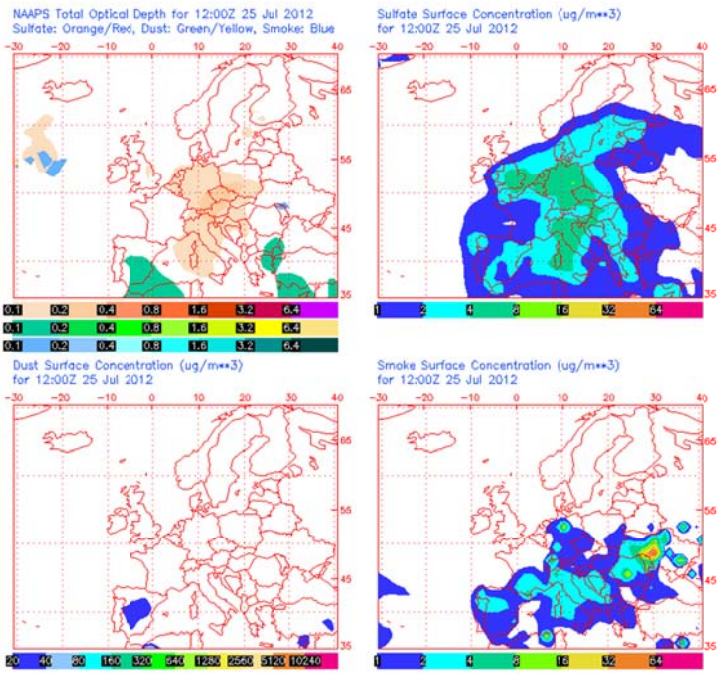
Figure S4. Relative chemical composition as a function of average concentration and number of data points for each range of concentrations. No clear differences are observed.


NAAPS Total Optical Depth for 12:00Z 23 Jul 2012
Sulfate: Orange/Red, Dust: Green/Yellow, Smoke: Blue
Sulfate Surface Concentration (ug/m**3)
for 12:00Z 23 Jul 2012
Dust Surface Concentration (ug/m**3)
for 12:00Z 23 Jul 2012
Smoke Surface Concentration (ug/m**3)
for 12:00Z 23 Jul 2012
Mon Jul 23 21:55:22 2012 UTC
NRL/Monterey Aerosol Modeling

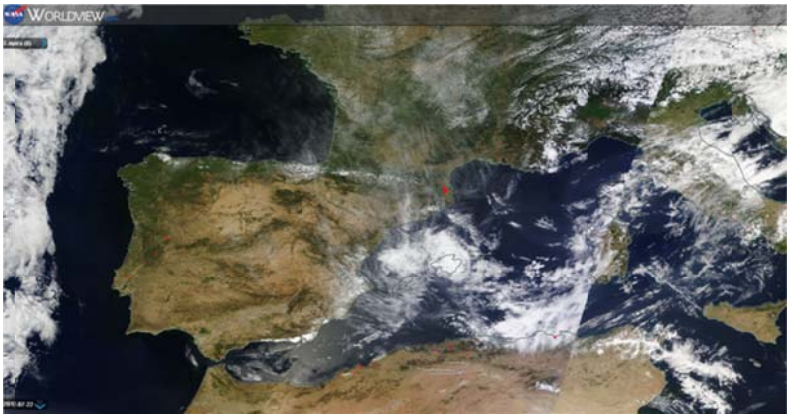
a)


NAAPS Total Optical Depth for 12:00Z 24 Jul 2012
Sulfate: Orange/Red, Dust: Green/Yellow, Smoke: Blue
Sulfate Surface Concentration (ug/m**3)
for 12:00Z 24 Jul 2012
Dust Surface Concentration (ug/m**3)
for 12:00Z 24 Jul 2012
Smoke Surface Concentration (ug/m**3)
for 12:00Z 24 Jul 2012
Tue Jul 24 21:55:34 2012 UTC
NRL/Monterey Aerosol Modeling

b)



c)



d)

e)

Figure S5. Total optical depth, sulfate surface concentration, dust surface concentration, and smoke surface concentration from the NAAPS model for 23, 24 and 25 July 2012 (wildfire event) (a-c), and satellite images from 22 and 23 July 2012 from The Earth Observing System Data and Information System (EOSDIS), NASA's Earth Science Data Systems Program (d, e).

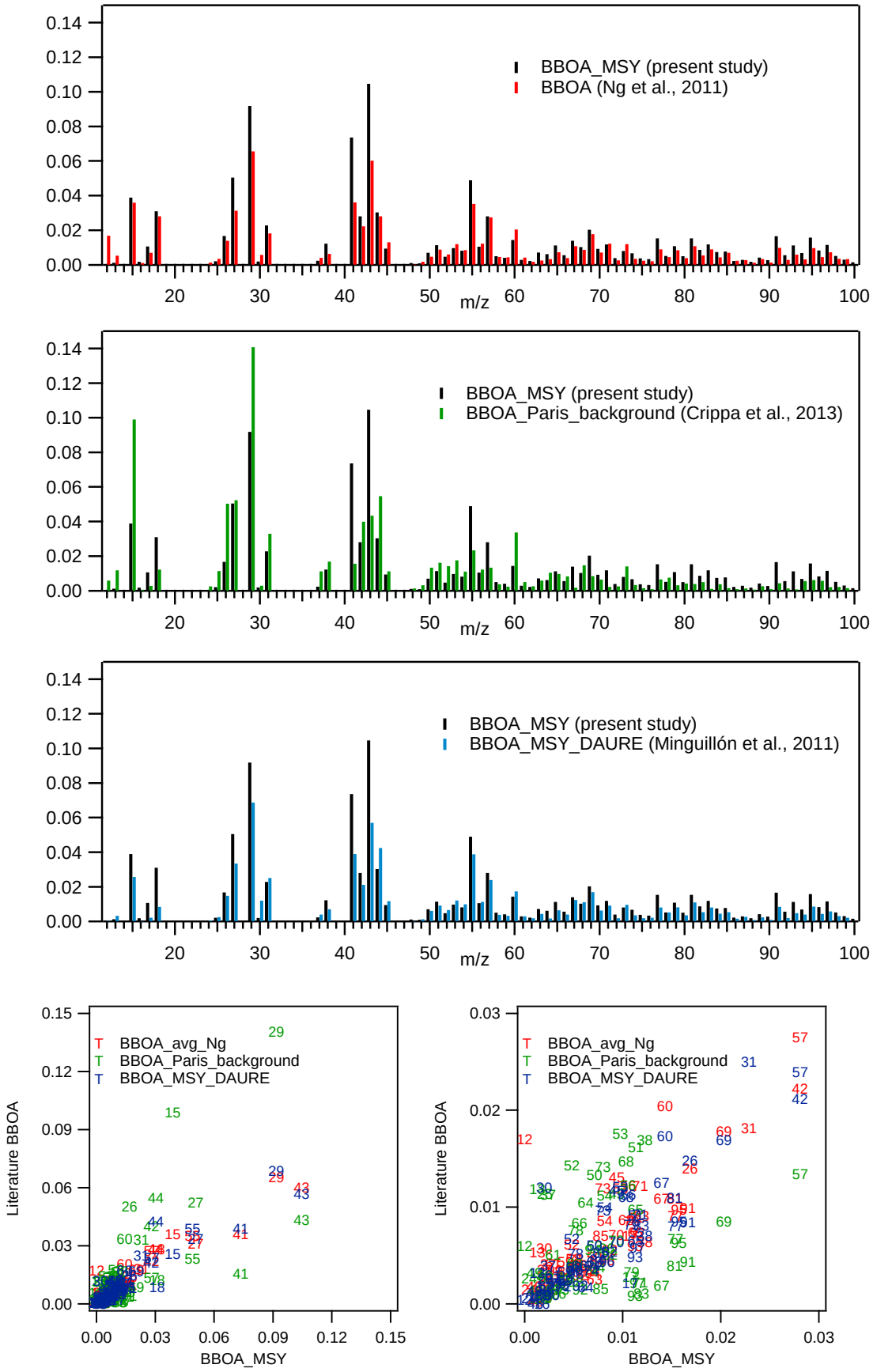


Figure S6. Comparison of the BBOA factor found for the wildfire episode (BBOA_MSY) with other BBOA profiles found in the literature (Minguillón et al., 2011;Ng et al., 2011;Crippa et al., 2013).

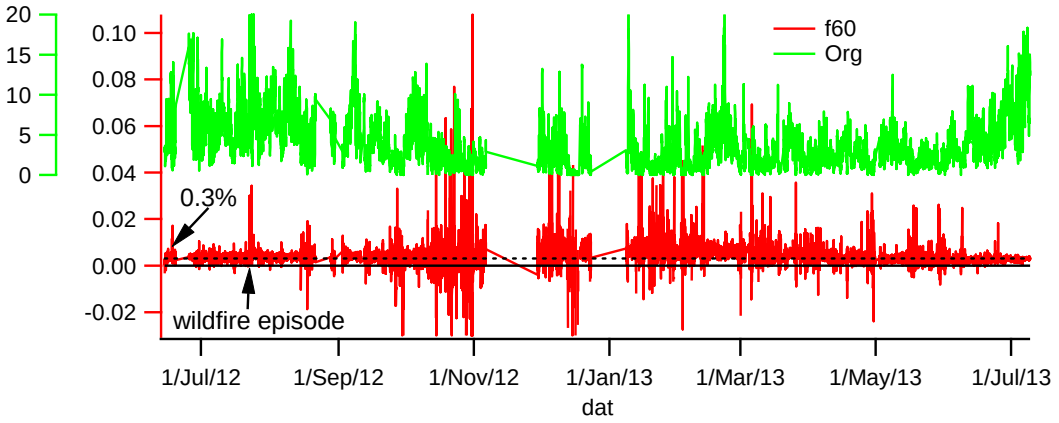


Figure S7. Time series of f60 (unitless) and OA concentration (µg m^{-3}) throughout the study period at MSY. Dashed line corresponds to the 0.5% threshold for the f60 determined by Cubison et al. (2011).

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