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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Fossil versus contemporary sources of fine elemental and organic carbonaceous particulate matter during the DAURE campaign in Northeast Spain" *by* M. C. Minguillón et al.

Anonymous Referee #2

Received and published: 26 September 2011

General comment The paper presents a source apportionment of carbonaceous aerosol in PM1 collected at two sites with different characteristics in the western Mediterranean. An interesting comparison of results on the biomass burning contribution obtained by different approaches is reported together with comments on the associated uncertainties. The paper can be accepted after some modifications (see specific comments).

Specific comments: Page 23576 line 16: EC and black carbon are operationally defined and they are not the same thing.

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Interactive Discussion

Discussion Paper

Page 23578 lines 25-29: it should be evidenced that this description refers to typical/general circulation patterns, which were not often observed during DAURE (as described in section 3.5).

Page 23579 line 25: how did the authors take into account sampling artefacts? Could organic carbon artefacts affect source apportionment based on radiocarbon measurements? Please add a comment in the text.

Page 23580 lines 4-5: 7samples x 2 sites in winter and 6 samples x 2 sites in summer are 26 samples in total (not 28 as reported)

Page 23580 line 14: 26 samples

Page 23581 lines 15-16: was the "standard" 6.6 m2/g absorption coefficient used in the MAAP data? If not, what was the value and how was it determined?

Page 23582 line 3: please avoid the citation of reports that are not available to the reader

Page 23582 line 19: Does "0.03 of fM OC" mean 3% or is 0.03 an absolute value (as it seems from line 23)? Please clarify in the text

Page 23582 line 21: modify the sentence as follows "prior to CO2 collection"

Page 23583 line 1: please avoid citing manuscripts in preparation if they are not at an advanced state of preparation. It is completely useless for the reader and there is no warranty that the paper will be ever published.

Page 23584 line 14: please add references for the iterative procedure you are referring to

Page 23585 lines 8-9: check the chronological order of the references

Page 23585 line 16: Table S1 can be removed and replaced by giving the range of the values used in this work and adding references. Indeed, the authors use an average

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value calculated considering only a couple of references. Moreover, even when all values are reported it is not clear which ones were averaged according to the authors' criteria

Page 23586 line 5: as in the case of EC-OC measurements, the existence of 4 different datasets produced by different labs and laboratories is quite confounding. In the end, the authors use the average value obtained by lev-HAS and lev-ISAC concentrations. Therefore, the referee suggests simplifying the text reporting only data/information related to these 2 datasets.

Page 23587 line 2: as suggested before, Table S1 should be removed and replaced by the range of values and appropriate references

Page 23590 line 12: in MSY a contribution by wild fires up to 1 μg/m3 corresponds to about one half of the average concentration (about 2 μg/m3 as reported in Figure 1). Should it be considered to have a "low" impact?

Page 23592 line 13: the 20% assumption is valid everywhere? Can BCN and MSY be considered "equally" urban?

Reference section: please check carefully because some references are missing, some are not cited in the text, and others are in the wrong order.

Interactive comment on Atmos. Chem. Phys. Discuss., 11, 23573, 2011.