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Interactive comment on “Joint analysis of continental and regional background environments in the Western Mediterranean: PM₁ and PM₁₀ concentrations and composition” by A. Ripoll et al.

Anonymous Referee #1

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This paper gives an overview of the chemical characteristics of PM₁₀ and PM₁ at a continental and a regional background site in Northern Spain, sites that are representative for background conditions in the Western Mediterranean Basin. The PM concentration and its chemical characteristics at the regional and continental background site is thoroughly compared, taking different meteorological regimes into account. The results are discussed in the context of data from other regional and continental background sites in France and Switzerland. The conclusions drawn are justified by the data and convincing. The paper is very well written and has a good and appropriate

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length, the information provided in the main text and in the supplementary material is well balanced. So I found this a very good and informative paper that should be published in Atmospheric Chemistry and Physics. It can be polished more or less as it is, I have only some minor comments that should be considered for a final revised version:

Page 16004, line 2: Should note something like “southern Europe/the northern Mediterranean region”.

Page 16006, line 11: Should note “PM10 and PM1 sampling ...”.

Page 16007, line 27: The authors state in a single sentence that the performed chemical analyses accounted for 60-90% of total PM mass. The undetermined fraction appears rather large. The authors should add a brief discussion about the possible nature of the unidentified fraction (missing compounds, analytical reasons, etc.).

Section 2.3: Please refer to Figure S5, which gives the information about the frequencies of the meteorological classes.

Page 16008, line 23: “... which uses the information for stability time series”. This information is probably not sufficient for readers. Please give more details what this means, or provide a reference. I would appreciate, if the authors could discuss in more details about the quality and limitations of PBL height estimates based on HYSPLIT.

16009, line 19: I think that “more important” is not the correct expression here, please change.

Page 16017, line 24: Replace “latest” by “latter”.

Page 16020, line 4: Should be capital K in K-feldspar and K-bearing.

Interactive comment on Atmos. Chem. Phys. Discuss., 14, 16001, 2014.

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