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Interactive comment on “Analysis of exceedances in the daily PM₁₀ mass concentration (50 µg m⁻³) at a roadside station in Leipzig, Germany” by C. Engler et al.

Anonymous Referee #1

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General comments The paper describes long-term measurements of PM₁₀ at a roadside, an urban, and a regional background site in the area of Leipzig. The motivation of this study is that 57 more exceedances of the daily mean threshold value than warranted by the EC directive 1999/30/EC occurred during the measurement period 2005–2009. The sources of the PM₁₀ exposure are discussed and the meteorological influences are analyzed. Conclusions are drawn about the particle emission reduction measures. The scientific topics of this paper are relevant and within the scope of ACPD. The investigation of long-term PM₁₀ exposure and its sources is a relevant task because measures are required to improve this situation. An important background for this task are the stagnating PM₁₀ mass concentration values all over Europe during

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the important reduction of PM10 emissions within the last decade and up-coming reduced traffic related PM10 emissions due to new Diesel vehicle emission regulations. The paper is well written. The title is adequate. Abstract and Introduction are corresponding to the paper content. The methods and results are sufficiently described and the conclusions are clear. The table and figures are of high quality and informative. The literature is well reviewed.

Specific comments Table 2: How are the seasons defined? How is PMcoarse defined? Table 3: Why is the pressure relevant? Why CO is not included? In comparison the indicators of polluted air like CO should be discussed also to present agreement and disagreements with the observed PM10 mass concentrations. Figure 1 left: What the dashed lines mean? Figure 4: The correlation coefficient should be given. Figure 8: The role of colors in a), b) and c) should be explained. Summary and conclusions: The role of seasons is a little too much pronounced – the meteorological conditions and variations of emissions are primary. In winter the role of salt used for cleaning the roads from snow and ice should be discussed also.

Technical corrections Page 15850, line 26: mass instead of mas.

Interactive comment on Atmos. Chem. Phys. Discuss., 11, 15831, 2011.

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