

## ***Interactive comment on “Trends of road dust emissions contributions on ambient PM levels at rural, urban and industrial sites in Southern Spain” by F. Amato et al.***

**Anonymous Referee #1**

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This manuscript presents a phenomenology of non-exhaust traffic emissions in Southern Spain over the last decade (2003-2010). This subject is of prime interest for the scientific community as well as for decision makers since the relative contributions of such emissions to total PM<sub>10</sub> are already high and expected to increase in the near future. Moreover chemical species related to tire, brake and road abrasions are known to induce adverse health effects. In this context, a better knowledge on the abundance, the chemical composition and trends of non-exhaust traffic emissions is strongly needed for the elaboration of efficient PM reduction action plans. Authors proposed a clear, concise and well-written manuscript. It also provides valuable information that could

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be extrapolated elsewhere. The title and abstract clearly reflect the content of the paper. Numbers and quality of Figures, as well as References and Supporting Information are appropriate. Authors are using state-of-the-art analytical procedures and source apportionment methodologies. For all these reasons, I unambiguously support publication within ACP. However, obtained results could be discussed much more deeply. In particular, authors should propose clear explanations on the reasons why equivalent contributions are found at traffic and urban background sites, while the last ones can be expected as being less influenced. Also: P. 31936, L.17-20: Is the winter health effect of non-exhaust emissions mainly due to heavy metals emitted by abrasion processes, or to deicing salt/sand particles? P. 31942: the thermal-optical protocol used for EC-OC measurements should be mentioned and eventually discussed. P. 31944: some explanations should be given on the choice of the 6 different dataset groups used for PMF analyses.

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