Interactive comment on “PM$_1$ geochemical and mineralogical characterization using SEM-EDX to identify particle origin – Agri Valley pilot area (Basilicata, Southern Italy)” by S. Margiotta et al.

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Dear Editor,

On the behalf of my co-authors, I would like to thank you and the Referee for the suggestions aimed at improving the proposed study. Following the suggestions, we have revised the manuscript. We hope that the manuscript in its revised version will meet your approval and that it will be accepted for publication in the Natural Hazards and Earth System Sciences journal. Thank you in advance for your attention.

Kind regards

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of white and grey limestone and subordinately dolostone of the Apenninic Carbonate Platform, tectonically overlapped upon radiolarites, siliceous argillites, calcilutites and marls referable to the Scisti Silicei Formation and Galestri Formation of the Lagonegro Units (Scandone, 1971; Carbone et al., 1988, 1991; Pescatore et al., 1999). The area north of the Pietra del Pertusillo Lake, at orographic left of the Agri River, is also characterized by the Albidona Formation (marls, clayey marls and silty clays) and Gorgoglione Flysch (sandstones and clays) terrains (Selli, 1962; Lentini et al., 1987; Carbone et al., 1991). The Agri valley is filled with continental clastic Quaternary units represented by coarse-grained slope deposits and clastic deposits from alluvial and lacustrine environment (Di Niro and Giano, 1995; Giano et al., 2000; Zembo, 2010; Giano, 2011; Gueguen et al., 2015).”

To be added in References following papers:


3 In this paper, wide importance was attributed to coarser fraction of the samples skipping the ìññéñéñéñé blocks. However the author claim: “... the ìññéñéñéñé particles consist mainly of anthropogenic or composite origin aerosol...”. In order to improve the reasoning, it could be better including discussion on the ìññéñéñéñé fraction.

Reply: The coarser (≥ 0.7 μm) and finer (< 0.7 μm) fractions show very different compositional characters with respect to the distribution of natural and anthropogenic components. The coarser fraction is discussed in greater detail because geogenic particles are concentrated mainly in the ≥ 0.7 μm fraction, which an important aspect of this research. Furthermore, the analytical technique used provided weak signals for the ìññéñéñé particles, characterized by a low Z.

4. Figure 2. The reference are missing, please indicate it.
Reply: the reference is missing because the meteorological data is not published but is provided directly by Viggiano Civil Protection, also mentioned in the acknowledgments.

5. Figures 5-6-7-8. You should insert the date of burning torch inCare event.

Reply: We accepted the referee suggestion and added to figures 5-6-7-8 the indications of the flare event date.

Changes to be made to the manuscript: Please replace the old figures 5-6-7-8 with the new versions attached, and edit relative captions by adding the phrase "the flare event date is highlighted in red".


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**Fig. 1.** Figure 5
Fig. 2. Figure 6

Fig. 3. Figure 7
Fig. 4. Figure 8

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