

Interactive comment on “An integrated approach for the evaluation of technological hazard impacts on air quality: the case of the Val d’Agri oil/gas plant” by M. Calvello et al.

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On behalf of all co-authors, I wish to thank Referee # 1 for the interesting remarks and the suggesting issues aiming at improving the proposed study. The revised version of the manuscript will be corrected following all the specific comments and all the technical corrections and suggestions.

Responses to the Referee’s comments, along with the acceptance of the proposed changes, are detailed below:

Page 2346 - Introduction - Line 25 "anthropized" - it is not clear what the authors mean

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here, please re-phrase. According to the Referee’s remark, the sentence has been reworded replacing “anthropized context” with “populated area”.

Page 2347-2348 "at our knowledge" - please re-phrase to "To the best of our knowledge" According to the Referee’s suggestion, we have made the change proposed.

Page 2348 - line 3 "...also if it is compared for example with..." please replace this with "comparable to" According to the Referee’s suggestion, we have made the change proposed.

Page 2348 - line 5 "observing" Perhaps "monitoring" would be a more suitable word to describe the process According to the Referee’s suggestion, we have made the change proposed.

Page 2348 - line 28 it is not clear as to why integration of routine air quality/additional experimental measurements are required. Is it because not enough air quality parameters are usually monitored in the 5 network locations mentioned later or of the big time lag between measurements and results? Or both? We think that more air quality parameters are needed to determine the environmental impact of the oil/gas pre-treatment plant. In particular, PM1 and BC additional measurements could be very significant due to their possible association with combustion processes such as those occurring in oil/gas pre-treatment plants. In fact, results of previous studies carried out in the Val d’Agri (Trippetta et al., 2013; Pavese et al., 2012) have highlighted the role of such parameters in the evaluation of the impact of oil/gas pre-treatment plant emissions on air quality in the area.

Cited references: Pavese, G., Calvello, M., and Esposito, F.: Black Carbon and organic components in the atmosphere of Southern Italy: comparing emissions from different sources and production processes of carbonaceous particles, *Aerosol Air Qual. Res.*, 12, 1146–1156, 2012. Trippetta, S., Caggiano, R., and Telesca, L.: Analysis of particulate matter in anthropized areas characterized by the presence of crude oil pre-treatment plants: The case study of the Agri Valley (Southern Italy), *Atmos. Environ.*,

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77, 105-116, 2013.

Page 2349 - line 12 Please delete "and" We have made this change.

Page 2349 - lines 21-23 Please add coordinates for each of the 5 monitoring stations
We added the coordinates of the five air quality monitoring stations.

Page 2350 - line 1 and line 10 Please explain "near real time" measurements. In line 10 you mention "...a time lag of several months due to the instrumentation". Near-real time measurements of air pollutants does not comply with a time lag of several months. Please add an explanation or re-phrase. The only measurements that are provided with a time lag of several months are PM10 concentrations at Viggiano Zona Industriale site due to the instrumentation used (i.e., a gravimetric sampler). For this reason, these measurements were not considered in this work. In fact, we analysed pollutant concentration measurements provided from the five air quality stations on real time only. According to your remark, the sentence has been reworded.

Page 2351 - line 22 Please replace "Poor" with "Low" According to the Referee's suggestion, we have made the change proposed.

Page 2351 - line 23 Please replace "situation" with "pattern" According to your suggestion, we have made the change proposed.

Page 2353 - line 27 Please replace "structure" with "pattern" According to the Referee's suggestion, we have made the change proposed.

Page 2355 - Again, it is not clear why set-up additional monitoring. More air quality parameters are needed to determine the environmental impact of the oil/gas plant or is the time lag between measurements and results so large that renders the existing monitoring network inefficient? Please, see authors' reply to "Page 2348 - line 28" comments.

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