

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 for the comments. The Val d’Agri area (Basilicata region - southern Italy) is a peculiar site due to the coexistence of the biggest on-shore reservoir of Western Europe with a large oil/gas pre-treatment plant (COVA) on one side and a populated area with several small towns, agricultural activities with valuable crops, woods and natural parks on the other. To assess the risks associated to the oil/gas exploration and pre-treatment activities on the local air quality and human health, a dedicated network has been designed and realized with five monitoring stations covering the area in a cross-shaped setting. The peculiarity and novelty

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of such a network is its density near the site and its capability to follow near-real time variation of plant-specific pollutants so that, at our knowledge, this is the first air quality network which provides continuous concentration measurements of so many pollutants in a such small area. In fact, even if many networks exist in Europe with similar instrumentation, they are usually designed to cover large areas with one station representative for each different kind of site (e.g: urban, rural, industrial). Moreover, these networks provide measurements of many air pollutants but they do not include pollutants (e.g., H₂S) that are specifically related to oil/gas exploration and pre-treatment activities such as those existing in Agri Valley. The approach proposed in this work provides the integration of air quality measurements from the above-mentioned regional network and additional experimental measurements (i.e., sub-micrometric particulate matter - PM₁ and Black Carbon - BC) necessary to infer impacts on air quality of anthropogenic activities concerning oil and gas extraction and treatment. The particular design of the network and the integrated analysis allow to obtain as main result the evaluation of the spatial range of COVA emissions fallouts and to identify the different sources of monitored pollutants. It represents a starting point for the development of effective and exportable air quality monitoring strategies useful for the assessment of hazards in similar cases.

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