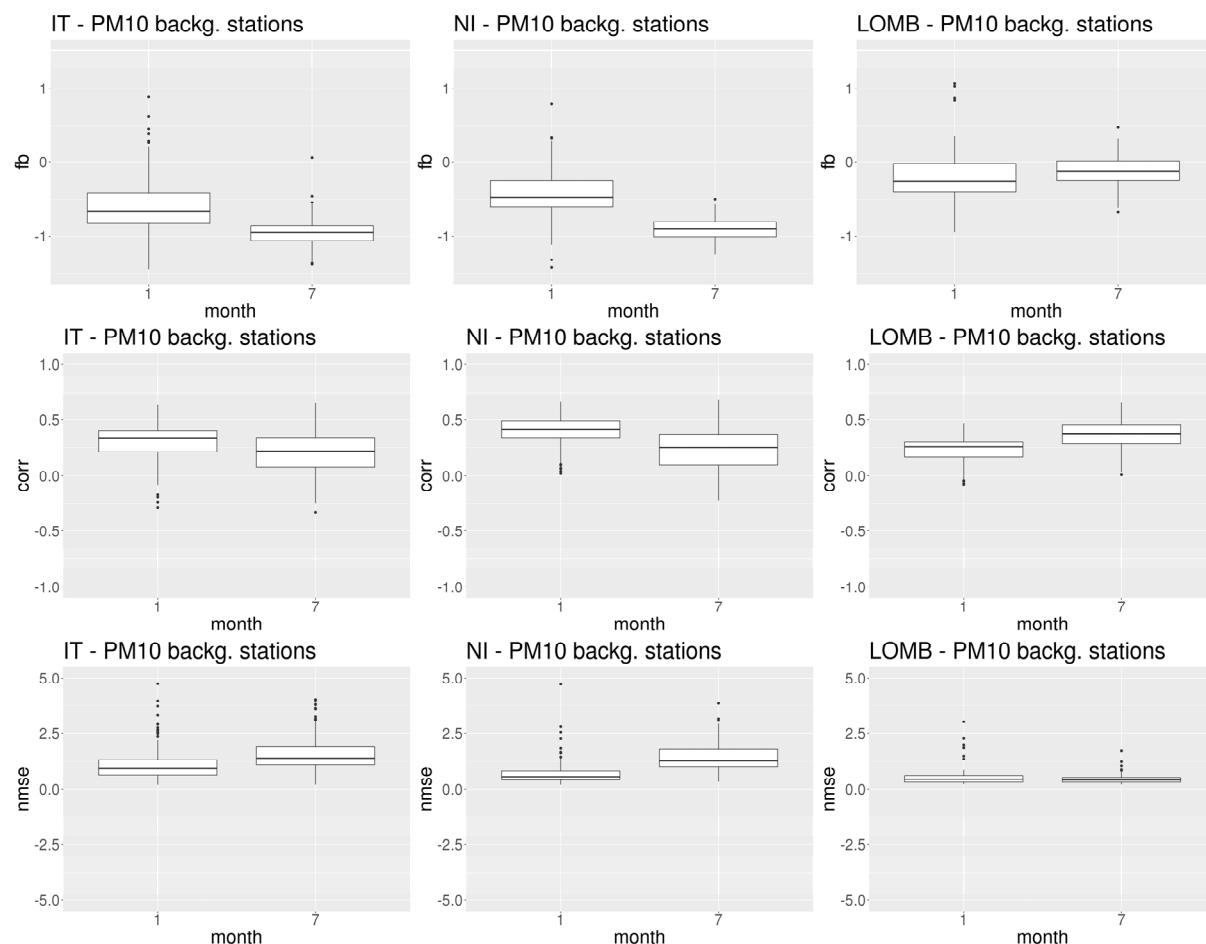


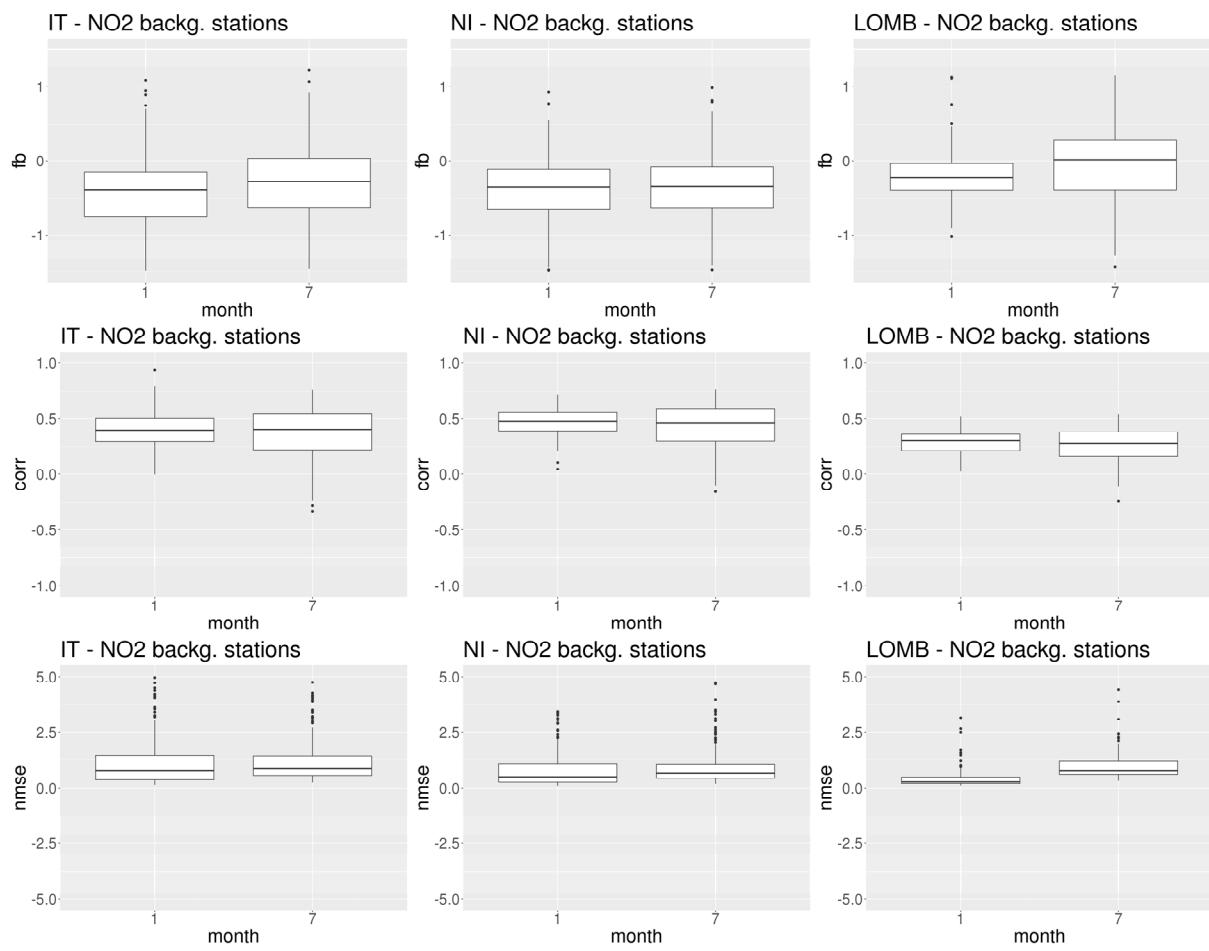


# Supplementary Materials: Implementation of an On-Line Reactive Source Apportionment (ORSA) Algorithm in the FARM Chemical-Transport Model and Application over Multiple Domains in Italy

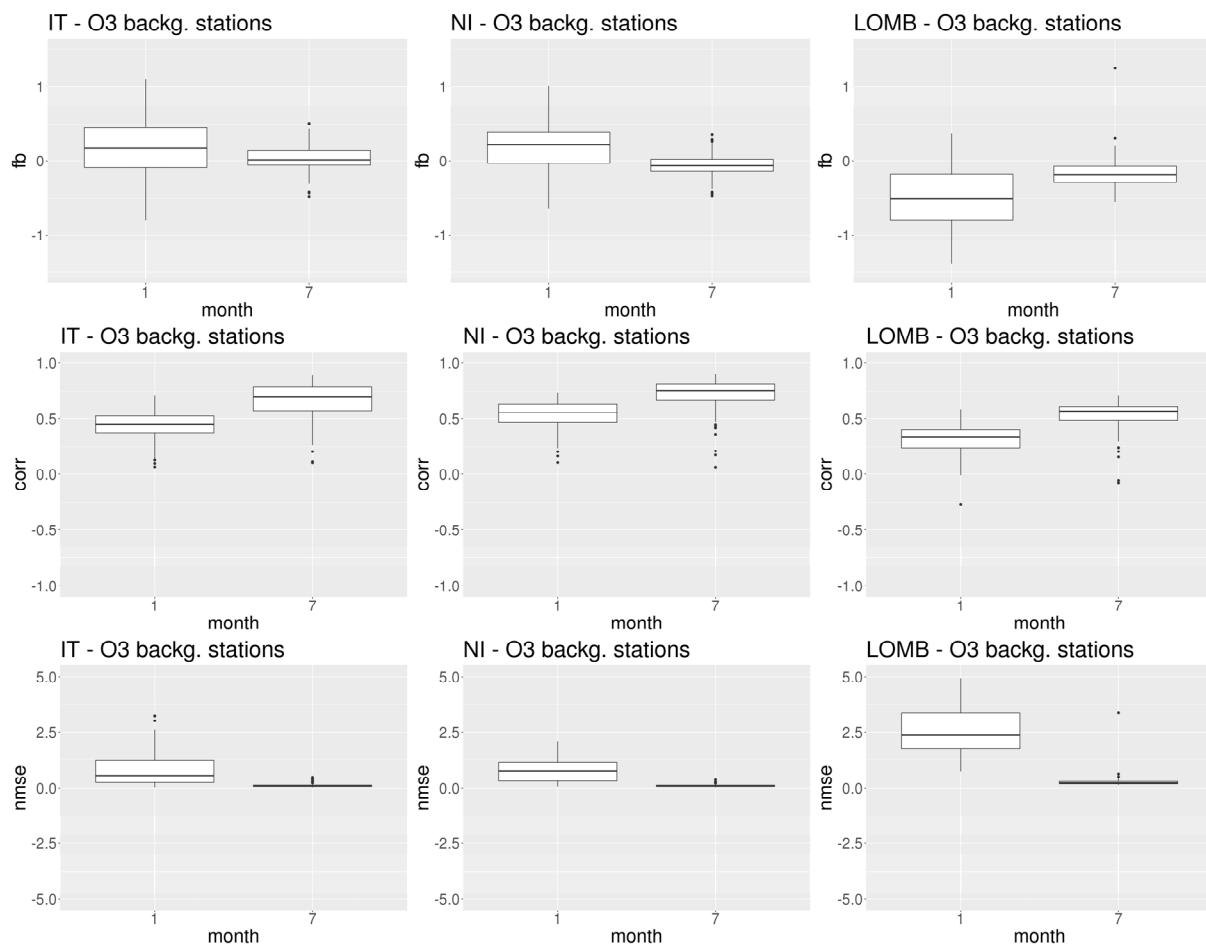
Giuseppe Calori, Gino Briganti, Francesco Ubaldi, Nicola Pepe, Ilaria D'Elia, Mihaela Mircea, Gian Franco Marras, Antonio Piersanti



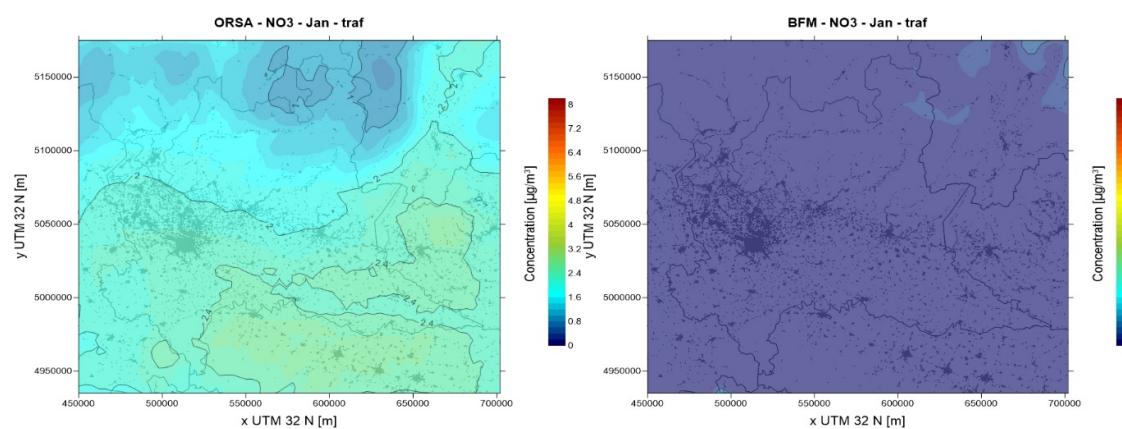
**Figure S1.** PM10: distributions of performance indices calculated over all the EIONET background stations included in the respective domains. From left to right: IT, NI, LOMB. From top to bottom: FB, CORR, NMSE.

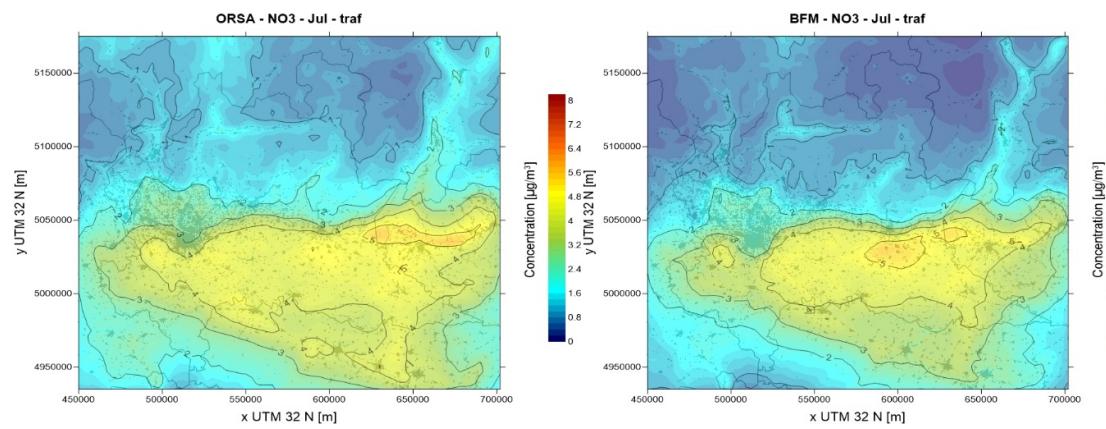


**Figure S2.** NO<sub>2</sub>: distributions of performance indices calculated over all the EIONET background stations included in the respective domains. From left to right: IT, NI, LOMB. From top to bottom: FB, CORR, NMSE.

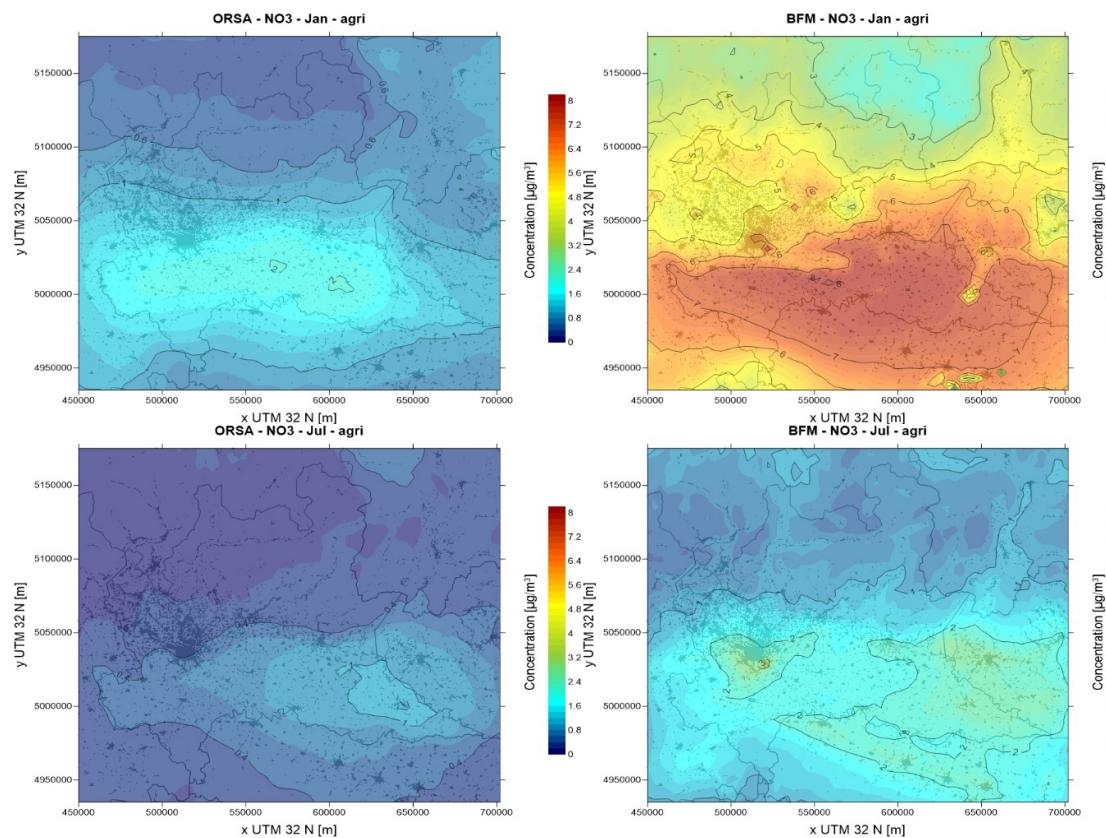


**Figure S3.** O<sub>3</sub>: distributions of performance indices calculated over all the EIONET background stations included in the respective domains. From left to right: IT, NI, LOMB. From top to bottom: FB, CORR, NMSE.

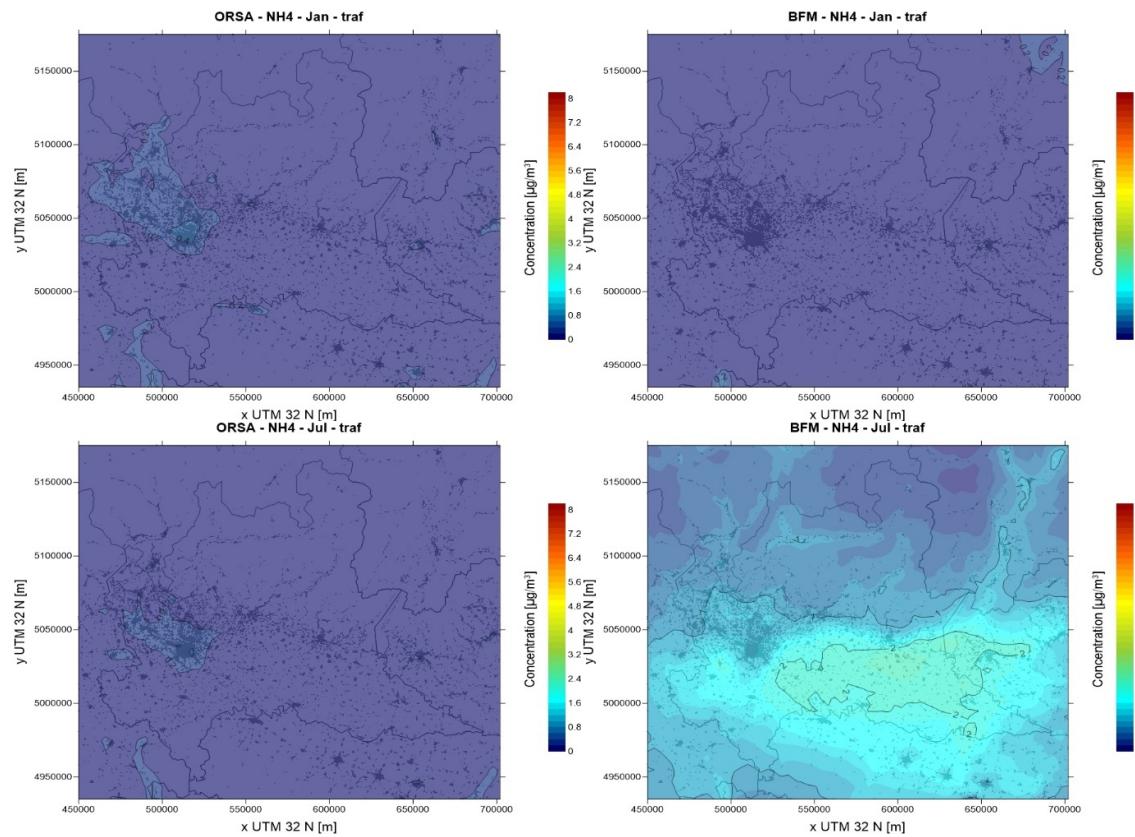




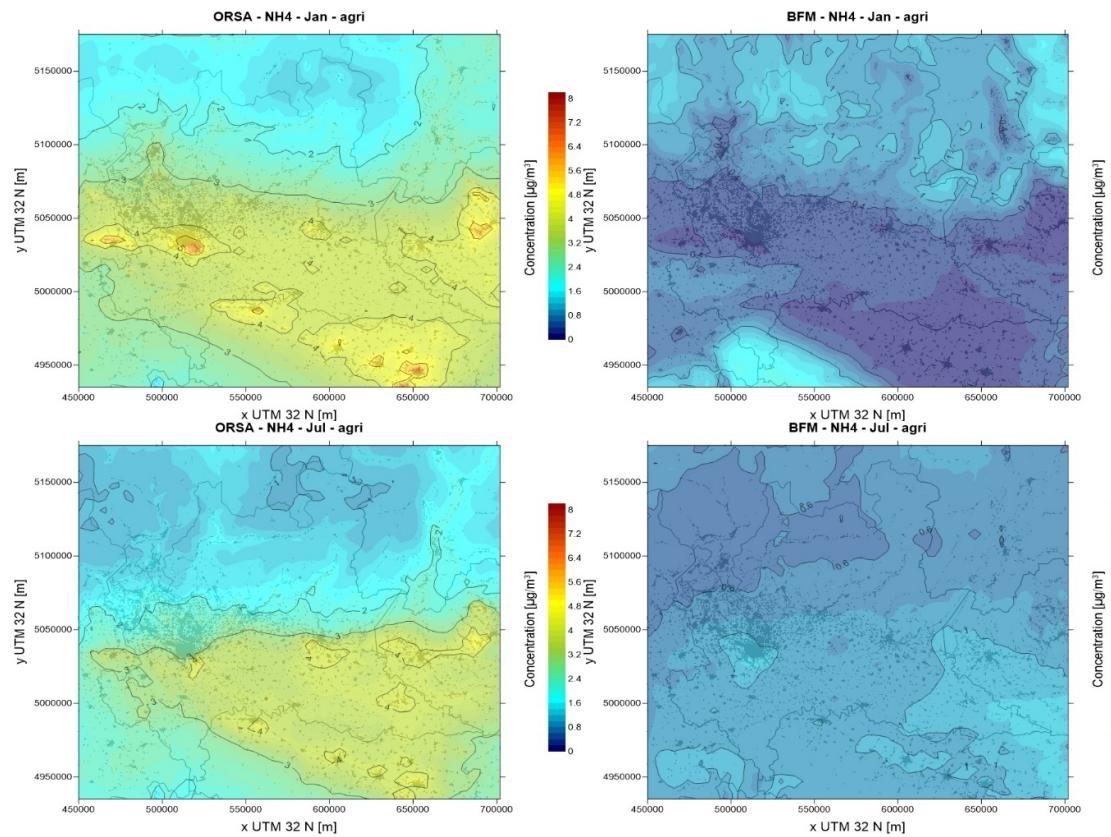
**Figure S4.** NO<sub>3</sub> concentration maps for traffic with tagged species (ORSA, on the left) and brute force method (BFM, on the right) for January (upper row) and July (bottom row).



**Figure S5.** NO<sub>3</sub> concentration maps for agriculture with tagged species and brute force methods for January and July.



**Figure S6.**  $\text{NH}_4$  concentration maps for traffic with tagged species and brute force methods for January and July.



**Figure S7.**  $\text{NH}_4$  concentration maps for agriculture with tagged species and brute force methods for January and July.