

Atmos. Chem. Phys. Discuss., referee comment RC1
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Comment on acp-2020-1058

Anonymous Referee #2

Referee comment on "Measured and modelled air quality trends in Italy over the period 2003–2010" by Ilaria D'Elia et al., Atmos. Chem. Phys. Discuss.,
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This manuscript analyses and discusses both observed and simulated trends of three air pollutants (PM₁₀, NO₂ and ozone) in Italy over an 8-year period. I have somewhat mixed feelings on the manuscript. On one hand, the paper is clearly written and well organized, and it appears to be scientifically sound. On the other hand, the paper is not particularly original, and it is unlikely to attract a wide scientific interest. I have three major points that the authors should address before I can recommend accepting this paper for publication.

First, since this paper deals with air pollution trends, I am concerned with the rather short time period (2003–2010) covered in the analysis. This is a very short time periods considering potentially large year-to-year variability in meteorological conditions affecting air pollutant concentrations. The authors mention (section 2.3) that the national emission inventory covers the period 1990 to 2015, and it is difficult to see what would limit running the model simulations for a longer period as well. Concerning emission data, I understand that there might be fewer stations with sufficient data coverage prior to 2003, but why not to look at the trends until 2015?

Second, the authors should explain more explicitly what is the scientific purpose of this paper. Evaluating the trends of air pollutants, as stated on line 81, does not really mean anything. After reading the paper, it seems that this paper is mostly about model evaluation, more specifically about the capability of the model AMS-MINNI in simulating air pollutant trends in Italy. It remains somewhat unclear whether the authors want to say anything about the actual air pollution trends over the considered time periods, based on either modeled or simulated data or some combination of these two.

Third, in order to attract more readers, the authors should at least shortly discuss the applicability of this paper to other part of the world, and in simulating the temporal variability of other important air pollutant than the three ones considered in this work.