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**Geoscientific
Model Development
Discussions**

Interactive comment on "Ground-level ozone concentration over Spain: an application of Kalman Filter post-processing to reduce model uncertainties" *by* V. Sicardi et al.

Anonymous Referee #2

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This paper presents another good example of Kalman filter application to post-process raw model outputs to significantly improve ground-level ozone forecast skills, and this should be the direction that the current air quality forecasting programs take. The analysis is scientifically sound and the manuscript is generally well presented. However, the authors need pay attention to the English writing and there are many running and incomplete sentences. After addressing the following comments and corrections, this manuscript should be published at GMD.

General Comments: The authors should carefully check the text and make sure any nickname is defined before its use. For example, the manuscript mentioned the IP

domain, but nowhere in the manuscript describes what an IP domain is.

Specific Comments:

1. Page 344, Line 9, "The bias-adjustment technique is found to improve the simulated O3 maximum ..", Change to "The bias-adjustment technique improved the simulation of daily O3 maximum . . ." 2. Page 345, Lines 24, 26, and many other places, "the O3", the word "the" should be removed. 3. Page 346, Lines 13 to 16, these sentences should be rewritten. 4. Page 348, Line 15, "adapting to 22 the land-use categories . . ." Don't understand? 5. Page 349, Lines 4 to 5, ". . . for the same period has been done the statistical analysis of the model skills", what has been done? This sentence has no subject. 6. Page 349, Line 13, it should be " were subject to", not "were subjected by" 7. Page 354, after Line 12, the following two paragraphs should be shortened. It is not necessary to describe all the numbers in detail. In fact, it doesn't mean anything for a mean bias value changed from -2.16 ug/m3 to -1.27 ug/m3. 8. Page 355, Line 10, " . . . in a single polar plot the RMSE", should be " . . . in a single polar plot of RMSE" 9. Again the description of categorical performance can be significantly reduced, and it is not necessary to mention all these specific numbers. 10. Page 359, Line 2, "In the figure are depicted the . . .", it is not a correct English sentence. 11. Page 358, about the spectral decomposition and Figure 8, it is impossible for a reader to understand the concept and what is doing with this brief description, and the information presented in Figure 8 is so dense for general readers to understand its meaning. The quality of this paper shouldn't be affected by completely removing this section and Figure 8. 12. Page 360, Line 4, change "considerably" to "considerable" 13. Figure 4 and Figure 5 can be combined and it is not necessary to present both Max 1-hr and Max 8-hr figures, since they are similar.

Interactive comment on Geosci. Model Dev. Discuss., 4, 343, 2011.