

Interactive comment on “Rapid growth in nitrogen dioxide pollution over Western China, 2005–2013” by Y.-Z. Cui et al.

Anonymous Referee #2

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This manuscript, titled “Rapid growth in nitrogen dioxide pollution over Western China, 2005–2013” by Cui et al. is an interesting work, analyzing the recent NO_x emission trend over Western China using OMI observations. The paper is clearly written, except for a few noted word choices, and is well-suited for publication to ACP. However, there are several concerns that should be addressed carefully before being accepted for publication.

Major comments:

1. The reliability of the wavelet decomposition analysis. This method is highlighted for being independent of prior assumptions. But the decomposition number is determined by the authors. How is the decomposition number selected? Is there any criteria? Will the estimated trend change if the decomposition number changes?

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2. The reliability of subtracting “background”. As far as I understand, the results will not change significantly without subtracting the background. If so, why bother?

3. 34918, L6: OMI NO₂ is used to scale base-year emissions and further drives model simulations. What’s the uncertainty of this assumptions? Will it be the major contributor to the agreement between OMI observations and model simulations?

Specific comments:

1. 34914, L12: Consider different word use than “provincial regions”.

2. 34916, L5: Please cite some literatures associated with emission inventories directly.

3. 34917, L9: Please check “30%+0.7*10¹⁵”.

4. 34920, L9: The conclusion is similar with that in van der A et al. (2006). Some discussion about his work is recommended. In addition, Fig 2a is not quite straightforward. Please consider a new form.

5. 34929, L18: What does “Qianghai province” refer to?

6. Figure 4: Please add the meaning of the red and blue lines in the scatterplot.

7. Figure 6: The font size is too small to read.

Interactive comment on Atmos. Chem. Phys. Discuss., 15, 34913, 2015.