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Comment

Interactive comment on “Ozone trends derived from the total column and vertical profiles at a northern mid-latitude station” by P. J. Nair et al.

Anonymous Referee #2

Received and published: 21 May 2013

The paper presents a very detailed trend analysis for total ozone and vertical profiles for Haute-Provence Observatory, a station where atmospheric ozone is monitored with many different techniques since the 80s. The authors use in addition satellite data from different sensors for the vertical distribution of ozone to further support their findings. Their analysis shows ozone recovery signals both in total ozone and in the profile measurements. The paper is well structured and written, the conclusions are supported by the analysis of the data presented and therefore the paper can be accepted for publications in ACP after considering my comments below:

1. Section 2: Since the authors analyze a large number of data sets with different characteristics, a summary table would help the reader to have a clearer view. As it stands now is rather confusing.

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2. Section 2.3. Is there any reasoning why the authors use QBO10 and QBO30 and not QBO50 and QBO30. Please add an appropriate comment.

3. Section 3.1. What is the added value to merge SAOZ and Dobson data? Does this improve the temporal coverage of the time series? Are there systematic differences between the two instruments? How are these treated?

4. Why the authors stop their analysis in 2010 and do not include 2011 a very interesting year for ozone in the Northern Hemisphere?

5. Page 7089 Line 21. As it is written the reader understands that Pinatubo generally explains about 10 DU of the ozone variability even many years after its eruption. Please rephrase.

6. Page 7090. Lines 1-3. Are these differences in July and August significant? Is there any explanation?

7. Page 7090, line 19. "It suggests the influence of other parameters". This statement is too generic. The authors should mention what could be missing from their analysis and eventually have impact on their results.

8. Section 3.2. It is not very clear how the authors combined the results of the analysis of the different instruments, which cover different periods and different layers. At the end they present results that correspond to layers, so it is not clear how the synergy of the different measurements has been applied. Please be more specific.

Interactive comment on Atmos. Chem. Phys. Discuss., 13, 7081, 2013.

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