

# ***Interactive comment on* “Total column ozone in New Zealand and in the UK in the 1950s” by Stefan Brönnimann and Sylvia Nichol**

## **Anonymous Referee #3**

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Brönnimann and Nichol describe two datasets of total column ozone records in the pre-IGY. One for Wellington, in New Zealand covering the period from 1951 to 1959 and the other from Downham Market in UK with about one year of data in 1951. The authors compare these datasets with data from other stations and models (ERA-preSAT, 20CRv3, CERA20c).

### General comments:

These datasets belong to the pre-IGY period; thus they are a valuable source of information in O<sub>3</sub> total column measurements history. The datasets itself are the main scientific value of this paper. Some considerations on the ozone before the 70's are also reported. The paper presents the results in a clear way, however I think that it can be slightly re-organized in order to help readability (I've added some suggestions be-

low). In addition, some results should be more clearly shown to fully support author's considerations on datasets quality (see some points in specific comments). The paper is written in a good English and the number of references is adequate. The supplement material is quite rich with Wellington, Downham Market and additional O3 datasets.

Specific comments:

- 1) Introduction: Can you add a description of other existing datasets (if any) like the one of Arosa?
- 2) Pag.2 line 61: remove D#17 is not relevant here ( it is just the code of the instrument) and replace it with Wellington coordinates. Do the same for Downham Market.
- 3) Pag.3 line 90: add C' wavelength values. This is also needed to understand why they have so low ozone influence (as stated in Pag.6 line 176).
- 4) Pag.5 line 161: Add wavelength for AD and BD, A . . .you can also add a table if you prefer. In general, I think you should provide more details on instrument configurations.
- 5) Pag.10: Please give more details on Ozone Office files and the ones from WOUDC (covered period, number of data, reference).
- 6) Pag.10 lines 311-313: "good agreement": please be more quantitative on the agreement, bias, the number of data used for this comparison or add a plot.
- 7) Pag.11 line 351: In my opinion the paragraph "Comparisons with . . ." should be moved into the results section. In addition, I find this section quite confusing, it is not really clear what you compare to what. Possibly it would be better to report the comparisons separately for Wellington and Downham Market in their respective subsections of section 4.
- 8) Pag.13 line 412: In my opinion the order should be maintained to help readability, Wellington before Downham Market.
- 9) Pag.13 lines 422-424: It would be nice to see these plots also.

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10) Pag14 line 431-432: “good agreement”: once again, please quantify.

11) Figure 4: Please add correlation and number of points on plots.

12) Figure5: Figure 5 is ok. However, I have a suggestion. Since the paper is on the two datasets (Wellington and Downham Market) and also the tile of the paper refers to both datasets, it would be better if you also show the Downham Market series, even if it is only one year of data. You may add a small panel on the left to this plot with the Downham Market time serie.

13) Figure 6: This plot is too qualitative. Please add correlations, bias, RMSE, number of points on plot. Possibly also the use of histograms and/or two different plots for the comparison with Oxford and ERA-presat instead of scattered plots should improve the quality of the plot and give a more quantitative idea of the agreement.

Technical comments:

1) Pag.4. line 111: add acronym for NIWA also here

2) Pag.4 line 118: Add coordinate

3) Pag.8 line 227: MICA: add acronym and reference

4) Table 1 and Table 3: this is just a suggestion, possibly you can replace “compared series” in Table 1 with “Downham Market vs”. Something similar can be made in Table 3 by filling the first cell with “Wellington vs”

5) Data availability: As far as I understand from the abstract and conclusions, Wellington and Downham market datasets will be available from the World Ozone and Ultra-violet Data Centre (but they are also in the paper supplement). I suggest to add the direct link to WOUDC in the “Data availability” section in the final version.

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