

## ***Interactive comment on “Pole-to-pole validation of GOME WFDOAS total ozone with groundbased data” by M. Weber et al.***

**Anonymous Referee #1**

Received and published: 14 December 2004

The paper by Weber et al uses a multiyear dataset of groundbased total ozone covering most of the globe for validation of a new retrieval algorithm of GOME. It is shown that the new scheme agrees with the ground based data in most cases by some percent, and usually closer than the old scheme, however, it should be more clearly stated what the main differences in the procedures are. It would be useful, to include at least the year 2000 in the whole intercomparison, especially for the northern hemisphere, to avoid artificial trends related to cold and warm winters.

The paper is a useful contribution to ACP and I would recommend publication after revision.

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## Main review points:

In the introduction the advantages of the new scheme compared to the operational one should be more clearly given. For example, how much are cloud related uncertainties reduced?

In the study the collocations 160km and 300km are used. Especially in polar winter and spring it would be useful to see if the deviations (near the vortex edge) can be considerably reduced by using the better collocation also, at least with a remark in the text.

## Specific comments:

## Introduction:

p. 6911, line 9: Use capital first letters in the full name of WFDOAS.

## WFDOAS algorithm

p. 6912, lines 18ff: Please a little bit more information on the use of the ozone profiles in the algorithm. Is the ozone hole and the seasonal cycle included in the climatology?

## GOME, Brewer and Dobson triple intercomparison

p. 6917, line 6: ... the percentage scale is finer... line 15: ...Staehelin et al 2003, see their Fig.5.

## Pole to pole validation

p. 6919, lines 12ff: please comment on the off-scale error bar in Fig.4.

p. 6921, line 5: it might be better somehow to describe the 'polar vortex', for example be inserting 'an isolated cold region characterized by descent, and ozone depletion'. Line 15ff: For better understanding the paragraph break should be in line 15 instead after line 18. Would it be possible to include an additional frame in Fig.8 where the differences to Brewer and Dobson are separated?

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Validation under ozone hole condition

p. 6922, line 17f: Here the vortex edge and the effect of the collocation should be mentioned.

Longterm validation

p. 6923: A similar figure as for Lauder should be included for Hohenpeissenberg. This would be of interest because of the larger interannual variability.

References p. 6927, line 5: include city and country (L.Aquila, Italy?).

Table 1: The longitude of Goose Bay is 60.38W. A column with the instrument types would be useful.

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Interactive comment on Atmos. Chem. Phys. Discuss., 4, 6909, 2004.

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