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Earth System
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Discussions

Interactive comment on "Dobson, Brewer, ERA-40 and ERA-Interim original and assimilated total ozone data sets – evaluation of differences: a case study, Hradec Králové (Czech), 1961–2010" *by* K. Vaníček et al.

Anonymous Referee #1

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The paper addresses the homogenisation of of the time series of total ozone observations. The new point is the use of a transfer function to eliminate differences between observations with a Dobson and a Brewer spectrophotometer. This example is worth being published as it should encourage owners of other total ozone data series to do similar work to improve the reliability of the observations. This contributes to the credibility of ozone trends derived from the observations.

Although the general structure of the paper if good, some wordings and notations are confusing:

The use of the word "assimilation/assimilated": in meteorology the term assimilation is used for a specific method by which observations (temperature, pressure, humidity, ozone,...) are injected in a (forecast) model to obtain an optimal description of the initial state of the model. In the context of this article something different is meant, namely the use of a transfer function to be able to merge the time series of the Dobson and the Brewer spectrophotometers. Therefore I suggest to avoid the use of the words "assimilation/assimilated", and to use for example "merged" or "corrected by transfer function" instead

A lot of different time series are considered in the paper, each obtaining an abbreviation in the subscript to X. This becomes confusing with the standard notations for Dobson instruments (eg X_D means in this paper total ozone from Dobson instrument, while in the Dobson world it would mean total ozone derived from the D-pair wavelengths). So a better choice of the subscripts (also avoiding ASSIM, see point above) would be desirable, together with an overview table with all the times series considered (Dobson, Brewer, Dobson with transfer function, Dobson Brewer merged, Dobson Brewer completed with model data, etc).

There is no clear description or reference to the method used to treat zenith observations for both Dobson and Brewer instruments.

Apart from the replacement of "assimilation" by another wording (see above) and a better choice of the subscripts the following technical remarks should be considered:

Line 6 p 447: replace "their versions" by "different versions"

Line 24 p 448 : replace "Complex" by Extensive"

Line 27 p 449: replace "etalons" by "reference instruments"

line 14 p 451: replace "complex" by "complicated"

line 21 p 451: insert "required" before "precision"

line 25 p 454: replace “personal capacity” by “staff limitations”

line 14 p 457: what is meant by “topical” should it be “typical”?

Line 10 p 459:what is meant by “topical” should it be “typical”?

Interactive comment on Earth Syst. Sci. Data Discuss., 5, 445, 2012.