

# ***Interactive comment on “A global radiosonde and tracked balloon archive on 16 pressure levels (GRASP) back to 1905 – Part 2: Homogeneity adjustments for PILOT and radiosonde wind data” by L. R. Pralungo and L. Haimberger***

## **Anonymous Referee #1**

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The paper presents the results of the homogenization of a new data set of wind speed and wind direction records for different pressure levels covering a significant number of stations over the world. The importance of such work can hardly be overstated. Homogeneity breaks arisen from the changes of instruments and measurement routines, station relocation etc. can affect results of climatological studies. Therefore, such breaks have to be detected and possibly corrected before any scientific analysis. The authors of the paper did a good work deserving to be published. However, I think, the paper in the current state need to be improved before it can be accepted for publication.

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First of all, English needs polishing. Sometimes it's quite difficult to understand what authors mean. The sections Abstract, Introduction and Conclusion require essential style corrections.

Secondly, all abbreviations, identifiers (like e.g. WMO identifiers) and parameters have to be explained in the text (e.g. PILOT and GRASP on p. 338, lines 4-5 or "U and V wind values" on p. 341, line 25).

Thirdly, the text is full of typos and sometimes the descriptions of a figure in the main text disagree with figure's captions or even with figure itself.

Technical notes:

1. Figures The text in some of the figures is difficult to read. The font size of the text in Figs. 1, 3-4, 6-8, 10-11 have to be increased.

Also, in my mind, it would be better if the scale for the SNHT statistics in the Fig. 8 would be the same as in the Fig. 6: the increase of the homogeneity of the corrected data can be easily seen.

I would also recommend to decrease the number of figures. Some of the figures can be combined (like Figs. 6-8, 12-14, 18-19, 20-21). This merging would not only decrease the figures' number but also help readers to see the clear difference between the raw and corrected data. Other figures (like Figs. 15-16 and 22-23) can be submitted as Supplemental or On-line Material.

Please, also, add the descriptions for the open circles to the captions of the Fig. 17.

2. Typo on p. 341, line 27 – "is is"

3. Equation on p. 342, line 10 – the sign seems to be wrong

4. On p. 349, line 19 and on p. 351, line 15 the word "Fig." is missing in "in 6" and "see 6".

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5. On p. 350, line 1 – “Figure 10” has to be instead of “Figure 6”
6. On p. 350, line 11-12 – here in the text the Fig. 11 is describing as having plots for 750, 500 and 300 hPa levels, but the Fig. 11 on p. 371 shows only data for the 500 hPa level.
7. On p. 353, lines 14-15 – the descriptions of the plots shown in Fig. 22a and Fig. 22b are mixed up.
8. In the Appendix A (p. 356, line 11) the Greek letter “theta” has to be changed to “phi”.

I strongly recommend to the authors to thoroughly re-read their text, improve its style and English, and re-check all figures and their descriptions.

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Interactive comment on Earth Syst. Sci. Data Discuss., 7, 335, 2014.

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