

Interactive comment on “Early ship-based upper-air data and comparison with the Twentieth Century Reanalysis” by S. Brönnimann et al.

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"First. It is desired to explain in more certain way what was the input into the 20CR just for the regions and periods of both cruises – it will make it more clear if the results of comparisons are promising." The pressure information assimilated into 20CR is shown on Fig. 1. No other information is assimilated. A corresponding sentence is added. Also, we are more specific with respect to the fact that Schwabenland data were not assimilated.

"Second. As the disagreements between the observed data and 20CR are discussed case-by-case, the clearer authors' position in each case should be expressed on what is more "truth" (observations or 20CR, or both are suspected as errors)." As the reviewer states, this can only be done case-by-case as the answer would be different

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depending on the case. We do this in some occasions (e.g., the trade wind inversion or the tropopause bias are more likely 20CR problems than problems in the observation, whereas the strange profiles number 50-61 in the Schwabenland cruise are more likely to be observation errors). In a more general way we do our best to quantify the errors on both sides independently from the data and then to assess whether the results agree with these estimations. We think that is all we can do.

"Third. The results of this paper are valid for formulating the authors' vision of new efforts in early reanalyses projects. This vision should be a plus of paper." We have added a sentence at the end that such historical marine upper-air data could be used in further data assimilation projects (see also reviewer 2): "...which can be used in future reanalysis efforts, such as those of the ERA-CLIM project, which will develop the next long European reanalysis."

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