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Interactive comment on "A global historical Radiosondes and Tracked Balloons Archive on standard pressure levels back to the 1920s" *by* L. Ramella Pralungo et al.

Anonymous Referee #2

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Data recovery beyond 1958 is important and valuable effort. In the manuscript, the authors describe the data recovery efforts, and the procedures to create a global long time series dataset of temperature and wind on standard pressure levels at synoptic times. The result is a technically uniform dataset that is published along with the manuscript. The authors claim that the main purpose of the created dataset is to aid climatological studies.

It is dubious if the dataset in its current state will be beneficial for climatological studies, since homogeneity of the observation data is absolutely crucial when looking for climate trends etc.

The manuscript describes the merging procedure of different data sources without considering homogenization of the data. In their introduction, the authors state that e.g. IGRA and CHUAN only partly fulfil the needs of climate scientists due to inhomogeneities in the data. At the same time, they merge exactly these data with other data from different stations, sonde types and measurement techniques, introducing even more inhomogeneities.Sensor dependent effects like e.g. different radiation sensitivity or the steadiness of the measurements under stratospheric conditions are not considered.

The presented dataset contains global radiosonde data in a format suitable for climatological studies. As such, climate modellers will tend to use the dataset without questioning the quality or homogeneity of the observation data.

In the abstract, the authors claim that homogeneity adjustments for both temperature and wind will be provided in a forthcoming paper. The authors intend to use the RAOBCORE technology to create a homogenized temperature and wind dataset, to be published in a separate paper. I strongly recommend to first continue the work with the planned homogenization procedures, and then publish the complete homogenized dataset together with the intended paper on the homogeneity adjustments. The homogenized uniform radiosonde dataset will be a very useful source for climate studies.

Comments on the dataset:

The presented dataset is a collection of radiosonde observation data, and the term 'observation' should be accounted for in an appropriate way. In the presented dataset, variables are given with unrealistic precision (e.g. no radiosonde sensor measures temperature with a precision of 10ˆ-4 K). No information is provided on the measurement's quality or its uncertainty. The merged dataset contains data from various sonde types and different wind finding systems introducing different measurement uncertainties to the data, and according information should be stored in the metadata. The authors are obviously aware of this, as formally the parameter 'sonde type' is envisaged, yet it

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contains no data even for the more recent soundings. Surely, the theodolite method, omega navigation system, radar or differential GPS differ in their measurement precision and uncertainty, so information on the adapted wind finding system should also be provided.

Interactive comment on Earth Syst. Sci. Data Discuss., 6, 837, 2013.