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Interactive comment on "30 years of upper air soundings on board of R/V POLARSTERN" *by* Amelie Driemel et al.

Anonymous Referee #2

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Major comments: The manuscript describes a 30-year radiosonde dataset collected from R/V POLARSTERN. The dataset would be very useful for various scientific applications. My main concerns are lack of more detailed information on the instruments and some statistics on the characteristics of the dataset, and overall data quality. The users very often trust the data creators and use the data as the "truth". It is the responsibility of the data creators to conduct some rudimentary quality control to the data and make the users aware of potential issues. I provide some details in "Specific comments". I think that the authors should put themselves in the users' shoes to think about what additional information should be provided. Based on my evaluation, I think that the manuscript is appropriate for ESSD, but needs some revisions before it is ready for publications.

Specific comments: 1. P2, L12: ECMWF was defined before.

2. P2, L25, "every 25-50m", Why is the vertical resolution only 25-50m? Does it contain high resolution (1 or 2 sec) or just GTS data? The latter only has data available at standard and significant pressure levels. Please clarify this. For research purpose, the high resolution data would be very useful.

3. P2, L28, Table 1: Please clarify whether it is RS80A or RS80H. It would be useful to list the sensor types in the table and their accuracy from the manufacture.

4. P3, L24: Besides "when" "where", does it contain the radiosonde type used? This would be very useful metadata information.

5. P3, Fig. 2: I would recommend that you use different colors representing the years when the data were collected if it is not too messy.

6. P3, Fig. 3: It might be useful to make similar statistics as a function of years.

7. P4, Section 3.3: Did you apply any basic data quality control procedures to all soundings, such as the limit, outlier, and monotonic pressure tests, to remove or flag any gross errors in the data?

8. P4, references: Wang (2002) should be Wang et al. (2002), and Miloshevich (2004) should be Miloshevich et al. (2004). This applies to all citations.

9. P5, L3: Add the reference Wang et al. (2013). Wang, J., L. Zhang, A. Dai, F. Immler, M. Sommer and H. Voemel, 2013: Radiation dry bias correction of Vaisala RS92 humidity data and its impacts on historical radiosonde data. J. Atmos. Oceanic Technol., 30, 197-214.

10. P4, Section 3.3: In addition to the biases listed here, the ship soundings might contain ship-specific biases, such as ship deck heating/cooling biases discussed in Ciesielski et al. (2014). They should be mentioned. Ciesielski, P. E., H. Yu, R. H. Johnson, K. Yoneyama, M. Katsumata, C. N. Long, J. Wang and others, 2014: Quality-controlled upper-air sounding dataset for DYNAMO/CINDY/AMIE: Development and corrections. J. Atmos. Oceanic Technol., 31, 741-764.

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