

This manuscript describes measurements collected from the NOAA P-3 as part of the ATOMIC and EUREC4A field campaign aimed at studying the trade-wind cumulus environment. It seems to be one of several manuscripts describing measurement and sampling strategy from different platforms during the same field campaign.

Since this is a manuscript about a dataset, I will stick to the review guidelines of the ESSD with the following comments.

**The article:**

- The article is clearly written and provided information on all major instruments. It gives sufficient details about the sampling strategy, the instrumentation, initial data processing, post-processing for derived quantities, and discussions of data issues for the individual instruments.
- The discussions are supplemented with figures on the location and altitude of the measurements and provide some illustrations of problematic measurements such as humidity sensing.
- It might be more helpful if the article gives a short description of how the sampling strategy supports the individual objectives or hypotheses of the overall ATOMIC/EUREC4A project.

**The data and data quality:**

- All data are accessible through the provided DOI. I downloaded some examples and read the data, there is a comprehensive data description in the metadata embedded in the NetCDF data file.
- The complete dataset is a result of well-designed flight plans and in coordination with other measurement platforms in a location where trade cumulus has not been studied extensively. From this perspective, the dataset is unique and will be very useful to the scientific community although the instruments are broadly used in other data collection efforts except for isotopic analyzer and likely the W-band radar. Because of the combined air-ocean measurements through the column of the atmosphere, the operational forecast community may find a use of this dataset for coupled model evaluation as well.
- The archived dataset seems to be complete. There are Mission documents for each flight to note data quality issues, too.
- The calibration and post-processing are likely routinely used at NOAA AOC and have been evolved over the years of measurements on the standard instrument package on the N43RF (miss piggy). I would not question the methodology too much.
- Figure 3 would show better if you use different colors to denote the measurements from the two data sections. Particularly, it would allow the readers to see the comparison between the dewpoint sensor and the isotopic analyzer for each profiling period. The slow response of the dewpoint hygrometer has always been problematic at the cloud boundaries, I'm glad ATOMIC has an alternative sensor for humidity, which makes the data a lot more valuable.
- It would be nice if turbulence were part of the measurements to make the dataset even more complete. Maybe this is something to consider if future measurements are planned for a similar research topic.

Overall, I think the article is well-structured and clear. It is appropriate to support the publication of the dataset. The dataset is unique, complete, and usable in its current format and size. The metadata is also appropriate. I would recommend publication of the article with minor changes to Figure 3.