

## ***Interactive comment on “Observed correlations between aerosol and cloud properties in an Indian Ocean trade cumulus regime” by K. Pistone et al.***

### **Anonymous Referee #2**

Received and published: 8 January 2016

Pistone et al. present data and analysis of aerosol, cloud and meteorological data in a trade wind regime over the Indian Ocean. Its subject and content is surely of interest to ACP. Here are some comments for the authors and the editor to consider.

Major comments: 1. The abstract needs to be rewritten. I think it can be more specific and to the point. In particular, they could highlight the uncertainties involved in the interpretation of the results they have. 2. In the introduction, the material is almost exclusively about previous studies done in the Indian Ocean region, which is perfectly fine since that is the place where this experiment took place. However, since the authors also emphasize a view on the general aerosol-cloud interaction problem within the trade cumulus regime, references and discussions about other papers may be needed to put current study in a proper context. 3. Frankly, the organization of the

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manuscript is a bit loose. I would encourage the authors to better organize the material if they can.

Minor comments:

Abstract Line 3: what is 'atmosphere structure' ?

Sentence beginning at Line 25 of Abstract: rewrite this sentence. I had a hard time understanding it.

2nd paragraph in Introduction: flux measurement is more relevant to thermodynamics instead of dynamics.

P29355 Line 8: using linear correlation statistics on log of data is weird. The usual assumption involved in the correlation could be violated in this case and the statistical significance test is meaningless. How about a regular linear correlation? What are the statistics for that?

Last paragraph on P29358: there is no reason to expect this island is representative of the large scale.

Sentence beginning at line 13 of P 29359: rewrite it. I could not understand it.

Line 26 of the same page: This indicates more of an advection process.

Line 7 of P 29360: how this correlation is done exactly? It needs to be clearly described. It is very important.

Section 3.2.2: there are many places where correlation is negative. Given the authors' hypothesis there should be no negative correlations anywhere.

Line 7 of P 29363: there are so many meteorological factors to be examined. For example, advection is not considered and it is quite relevant.

Line 7 of P 29364: increasing T will strongly decrease RH.

Conclusion: it's overall too general and should be more specific.

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Interactive comment on Atmos. Chem. Phys. Discuss., 15, 29347, 2015.

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