

## ***Interactive comment on “The Amazon Tall Tower Observatory (ATTO) in the remote Amazon Basin: overview of first results from ecosystem ecology, meteorology, trace gas, and aerosol measurements” by M. O. Andreae et al.***

### **Anonymous Referee #1**

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While not explicitly stated in the manuscript (except indirectly in the title), it appears to me that this paper is an introduction article to the ATTO special issue rather than a regular research article. At such, the paper is very well written and easy to read. I do not find any errors in the paper, so my comments are mainly related to structural and technical issues. Once the authors have addressed the comments given, I recommend accepting this paper for publication in ACP.

General issues

C2748

The objectives, given in the end of section 1, remain a bit unclear when reading the paper for the first time. What are these objectives representing? Objectives of the whole research being done in ATTO, or even more generally in the Amazon basin? Objective of the research planned to be published in this special issues, or something else? Please define this clearly in the text. The current list of objectives ranges from aiming to solve purely scientific questions to mainly technical issues (carrying out various kinds of measurement). The whole paper would definitely be more appealing to readers if the authors could somehow divide the list of objective into 2-3 separate categories (e.g. “scientific aims”, “technical goals” etc.).

The type of this paper should be reflected in the section titles. Therefore, I do not think that the titles of sections 4 and 5 are appropriate. For example, some of the subsections in section 4 do not contain results at all (e.g. 4.1.2) but rather describe what is being done in practice. I suggest renaming the title of section 4 something like “4. Ongoing research and preliminary results”. Likewise, the conclusions made from the ongoing measurements are preliminary rather than end products of this project. I would be more comfortable with the title “5. Summary and future outlook”.

While I am in favor of keeping section 3 as brief as possible, some addition information might be useful for the readers. Section 3.4: what is the accuracy of trace gas measurements, especially in terms of the detection limit for concentrations? Sections 3.6.1 and 3.6.2: Are the instruments measuring aerosol number size distributions, optical properties and CCN under regular quality control and have any of these instruments been in instrument inter-comparison experiments?

Technical issues

Page 11634 and Figs. 8-11: What does SD function mean? Please define.

Pages 11637 and 11638: The authors use terms “intermittent events” and “GW events” and sometimes simply events (line 14 on page 11638). What is the difference? Is one of those subset of the other, or are they totally different phenomena.

C2749

In principle, the figure captions should be understandable by themselves. Therefore, I recommend spelling out SD, TKE and GW in the captions of fFigs. 8-11, 13 and 14.

There is a very large number of figures. Are all of them necessary and could some of them combined together (for example, Figs. 17-19 could form 3 panels of one figure).

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Interactive comment on Atmos. Chem. Phys. Discuss., 15, 11599, 2015.

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