Reviewer comments are in *italics*. Author responses are in plain text. Text in the manuscript is in `courier font`.

We thank the reviewers for the constructive comments and the resulting improvements to the manuscript.

1. *The paper provides an introduction to the GoAmazon study with the intention of having three overview papers follow. The paper is well written and does provide an introduction to the experiment. However, given that this is an Introductory paper, it would benefit by providing a more specific description of the overall scientific goals of this program, as well as or encompassing those more specific of the individual sites/aircraft. What was the purpose of the ground site setup, what were the key measurements and how did they achieve the goals. What specific atmospheric chemistry or physical processes were being investigated? What were the objectives of the aircraft and how were the flights designed to achieve these objectives. This text could be enhanced in the Introduction and in the Experimental design sections. In addition to the scientific goals and experimental design, details on how successful this study was as a whole, as well as specific successes would be useful.*

ACP has papers that are of type "Introduction" and "Overview". The present manuscript is of type "Introduction". Instructions for this type of article are as follows:

In addition to the above manuscript types, special issues may include an **introduction article** or an **overview article** or both. Introduction articles outline the motivation and background, and overview articles synthesize and summarize the findings of the special issue papers. The manuscript title must clearly reflect the relation to the special issue and should start with "Introduction:" or "Overview:"
http://www.atmospheric-chemistry-and-physics.net/about/manuscript_types.html

In line with the above guidelines of the ACP, the principle is applied that the Introduction does not present specific scientific results of the experiment. Instead, the Introduction provides motivation, background, and some contextual information. Contextual information includes satellite images at a larger scale than the domain of GoAmazon2014/5 measurements, which are focused on the Manaus region. This viewpoint, which has some validity to be sure, is the basis for the preparation of the Introduction; at the same time, the set of reviewer comments go to the point that the motivation and background for the experiment can be more fully explained. The text is accordingly improved, and we thank the reviewers for the red flag on this issue in the manuscript's submitted form. The three reviewers also have other helpful and informative suggestions for what could be included in the manuscript, but in some cases these suggestions lie outside the scope of our goals for what we wish to accomplish in the Introduction.

Regarding actual results from GoAmazon2014/5, the submitted Introduction provides information about the Overview papers that will appear. The following wording is included in the manuscript: "`In conjunction with the Introduction presented herein, research results and findings of GoAmazon2014/5 appear in the articles of this Special Issue. The Special Issue is open for new submissions for three years. A series of three Overview articles is`

planned for summarizing and synthesizing the findings of the papers of the Special Issue. These planned Overviews encompass the various objectives of GoAmazon2014/5."

One other goal of the Introduction is to provide a reference document for other scientists involved in GoAmazon2014/5 as they prepare their manuscripts. They do not need to repeat detailed information on site descriptions, overall campaign goals, and other contextual information. This goal also serves future readers. There is a useful, consolidated, consistent reference document for those writers and future readers. Many of the figures were related to this purpose, and those figures are relocated to the Supplementary Material in the revised document.

The revised text makes the intention and scope of the Introduction clear in these various aspects.

2. *p. 30182, L. 15 – 'many additional research groups' ? What does this mean?*

The text is updated to read: "additional personnel and instrumentation".

3. *Tables S1-S13 – Some of the instrument names indicate the quantity being measured, but some do not. The table needs another column indicating the measurement quantity.*

The 13 tables list 243 instruments. Much of the instrumentation (e.g., aerosol mass spectrometer as one example or radar facilities as another example) provides many different types of data sets, which cannot be concisely described. The goal of the Introduction, therefore, is to list of the instrumentation. Although we understand the spirit of the reviewer's suggestion and thank the reviewer for it, a review of the capabilities of 243 instruments is out of scope of the Introduction. The interested reader will find more information in the Overview papers as well as the research papers associated with GoAmazon2014/5.

4. *p. 30184 – is the 'guest instrumentation' reflected as University instrumentation in Table S8?*

Yes, "guest" is "university". The revised text removes the term "guest".

5. *Figs S1 and S2 – I presume the altitudes are masl? I think the label for Fig S2 should be for IOP2?*

The revised manuscript is corrected. Thank you.

6. *p. 30184, L. 16-20 – The flight tracks themselves do not indicate the actual location of the plume or how the plume was carried. They only indicate where the aircraft flew. It would be better to have an explanation of the prevailing winds, daily wind pattern and how the aircraft flights were designed to track the Manaus plume downwind (previous studies, radiosondes, forecasts).*

The reviewer is correct that a detailed account of each flight would be better in terms of providing more detailed information to a reader specifically interested in the aircraft flights. This information, however, is outside of the scope of the goals of what we seek to accomplish with the Introduction to GoAmazon2014/5. For instance, although the aircraft component is important to GoAmazon2014/5, similar requests for more detailed accounts could be made for the other

measurement platforms and research sites that did not involve the aircraft.

7. *p. 30184, L. 21 – How was the plume forecasted? What model? Reference?*

The sentence is inserted: "`The plume was forecast by the CATT-BRAMS model (Coupled Aerosol and Tracer Transport model to the Brazilian developments on the Regional Atmospheric Modelling System) (Freitas et al. 2009).`"

8. *p. 30182 – Title should reflect that the section describes both sites and aircraft flight descriptions.*

The title is revised to: "`Site and aircraft descriptions.`"

9. *p. 30186, L. 27 simulated wind trajectories. Need some more detail including uncertainties on these simulations and text/references describing how these were calculated.*

References are provided to Silva Dias et al. (2004) as a general citation to BRAMS and to dos Santos et al. (2014) for the specific case of Manaus. The personal communication of G. Cirino is both a PhD thesis recently submitted and an associated manuscript that will soon be submitted.

10. *In the Climatology section, I suggest having a discussion about the climatology of the winds/wind patterns. This would support the following discussion it the Section on sources.*

In this region of the planet, trade winds prevail. The text states: "`The mesoscale and synoptic meteorology is based on soundings as well as satellite observations. The trade winds carried equatorial air of the South Atlantic into the 20 Amazon basin. Fourteen-day back trajectories, originating 100 m above Manaus, are grouped together and shown in Fig. 6a`" and "`During the dry season, the ITCZ shifted northward, and the Manaus region was under air masses coming from the Southern Hemisphere (Fig. 6b). The trade winds carried air and moisture from the South Atlantic to the middle of Amazon basin`."

11. *p. 30187, L. 9-14 Having high concentrations of these pollutants in a plume is not surprising, however, it's not clear why these results motivated this study.*

These words are deleted from the revised manuscript.

12. *Figure 3 –Lat/longs needed for edges of maps. Figure 4 – I don't see this figure as being useful.. Figure 5 – Combine Figure 3 and 5. Consider one figure with 2 maps – Figure 1 + combined Figure 3/5, indicating the zoomed in portion of Figure 1. Figure 6 – lat/long labels needed. Figure 7. Figure needs to be substantially larger. For the wind and relative humidity plots – since the measurements were taken 4 times/day how were these figures generated? Interpolated somehow? What is the typical boundary layer height? Figure 8 – axis numbers and legend difficult to read. I find this figure and the labels a bit confusing. Figures 9 and 10 – For print, figure could be much larger. Lat/long labels needed on figures. These figures could go in supplementary and explained briefly in text that there are more fires in the dry season*

compared to the wet season. Figure 11. For print, figure could be much larger. Why is there no colour scale legend? Is this parameter unitless?

The figures were sized for a traditional journal page, but unfortunately were presented in a smaller format in the ACPD representation. As the reviewers point out, several became difficult to read in the ACPD format. Nevertheless, the figure width and font size all follow the *ACS Style Guide* (http://pubs.acs.org/isbn/9780841239999) when produced at the size of standard printed journal pages. They will appear at correct size in ACP, meaning full-page figures in some cases.

The labeling and other improvements (e.g., figure combination) suggested by the three reviewers were incorporated for the most part in the revised set of figures. We appreciate the suggestions.

For verification of reviewers and editor, the revised set of figures is included at the end of this file at the size intended in an ACP publication.

Figures 3, 4, 5, 9, 10, and 11 are moved to the Supplementary Material.

The revised caption to Figure 1 states the rectangle of latitude and longitude: "`The map rectangle is drawn from (-3.66°, -60.92°) in the southwest to (-1.91°, -58.58°) in the northeast`."

Referee Comments

13. *There are too many figures and many of them are too small to be useful and/or they don't teach very much. In general, the figures are poorly labeled, and as a result, will only be useful to the science team and not the general readership of ACP. Changes to the figures should include latitude and longitude labels at the edges of all Google Earth images and other maps. To the extent possible these images should be scaled identically and some should be combined. For example, figures 3 and 5 can be combined. Figure 6 doesn't say much and could be deleted. Figure 7 is too small to be useful and can be deleted without loss to the reader. Figures 9, 10 and 11 have too many panels that seem to be redundant. As a result the figures are too small to be readable and all the panels look the same. Each of these figures should be limited to no more than 2 panels. Figure 8 seems to be mislabeled. Perhaps b1 should be a2? It is not clear that the anomaly adds much for the reader. My attempt to read them suggests the variation is of order 20-30%, an amount that doesn't seem surprising for a 2 month window or likely to have any effect on the interpretation of the gas or aerosol measurements. I suggest the authors clarify what is unusual about the anomaly and how it might affect interpretation of data that will appear in many of the GoAmazon papers or delete those panels.*

Please see response 12.

14. *I recognize that overview papers are not the place for new science, however, as this paper describes the experimental design of GoAmazon, some reflection on the success of the overall experimental design is appropriate. For example, similar objectives guided the southeast US experiments in 2013. This experiment had many of the same elements but attempted to link ground sites in a Lagrangian manner. Was that large scale design element effective? The paper*

should provide guidance to others thinking about large scale experiments.

Please see response 1.

15. *The acronyms ALC, CLC, CAPI and TES are not necessary to the paper and are a distraction to the reader outside of the GoAmazon community and should be simply spelled out.*

The revised document follows the reviewer's suggestion.

16. *It is essential that the authors describe the measurements needed to accomplish the larger goals outlined in the paper and indicate which sites were instrumented to accomplish which goals. A list of instruments at each site is needed. The paper's description of instruments and measurements by facility name (e.g. AMF-1 or MAOS) are not useful.*

The list of instruments appears in 13 tables in the Supplement.

The following wording is included in the manuscript: "`Instrumentation at each site, including the aircraft, is catalogued in Tables S1 to S13.`"

17. *The sentence "Four additional containers of guest instrumentation ..." is also not useful. What did the "guests" measure? Why are some participants in the experiment "guests" and others presumably some other status, perhaps "hosts"? Does that designation affect the science goals or the functioning of the science team? What will it mean to a reader 10 years from now? .*

The text is revised to remove the confusing term of "guest".

Referee Comments

18. *The manuscript provides an overview of the GoAmazon2014/5 experiment with the intention to introduce the Special Issue in ACP on this integrated multi-platform experiment. The paper aims to providing fundamental information on the design of the experiment, deployed platforms, source regions of anthropogenic pollution and biomass burning relevant to the target area, and meteorological conditions during the intensive operating periods, and thus setting the frame for the detailed scientific publications to come. In its current version, the paper does not meet the requirements for an introduction paper to such a complex experiment. In general terms, it is well written, but the readability would largely benefit from restructuring the presentation of the material and critically revisiting the presented figures. Specific comments are given below. In summary, major revisions are required prior to acceptance for publication in ACP.*

Please see response 1.

19. *The introduction paper to a Special Issue of such a complex, integrated, multiplatform experiment should present the overarching ideas and scientific objectives of such a study, participating partners, role of partners, measurement concepts and study design. Since this is not the first integrated experiment of this kind, the specific study design and approaches should be reflected in the light of experience made during previous large-scale experiments of similar kind.*

I consider this an essential piece of information required for the justification of the approaches chosen for GoAmazon2014/5. It would also highlight potential new approaches developed for this study. The introduction section would benefit from a more clear structure which may be achieved by introducing subheadings. The section contains information about previous knowledge and motivation, study design, and structuring of the ACP Special Issue. At least, these different parts of the introduction should be separated by subheadings.

Please see response 1.

20. *Many figures require redesign and also merging into a single figure. Reviewers #1 and #2 have commented this aspect in detail, so that I can focus on the most important issues. Figures 3 and 5 may be merged and presented as traditional maps instead of using Google Earth. This would enhance the information content because populated areas are easier to distinguish from the surrounding forest and farm lands. Furthermore, major roads are easier to identify. Figure 4 can be removed completely. The information is already contained in Fig. 1. Figures 7 and 8 have to be enlarged and require larger axis labels, otherwise the given information is lost. Figures 9 to 11 require re-arrangement. Why not selecting few demonstration cases and combine fire detection from Figs. 9 and 10 with the respective MODIS AOD in a single multi-panel figure? The other periods may be shown in the Supporting Information. In the current form, these figures are almost useless.*

Please see response 12.

21. *Page 30177, last line: This sentence should be moved to the end of the abstract.*

The value of this suggestion was considered but in our view it would be out of place to relocate the sentence to the suggested location. The purpose of this sentence is not to close the abstract. Rather, its purpose is to introduce the sentences that follow it in the abstract.

22. *Page 30178, line 10: Doesn't Amazonia also influence global climate*?

Yes. The sentence reads: "`Amazon basin functions as a giant biogeochemical reactor to influence regional climate, with both exports and imports of climate-relevant quantities in connection to other regions of Earth.`" The connection to global climate is made clear through the phrase "`export and imports of climate-relevant quantities`".

23. *Page 30179, line 3: Suggested rephrasing: ": : : are not fully understood."*

The reviewer's suggestion is incorporated.

24. *Page 30188, last line: The sentence starting with "Importantly : : :" seems to be incomplete.*

The word "`there`" is inserted.

25. *Page 30190, line 24: I suggest starting a new section here.*

An additional header could be added here as a matter of author preference. We have preferred,

however, to keep the text less broken up. We think introducing the paragraph with "`In summary`" serves the purpose adequately of guiding the reader that this paragraph moves to a summary.