

Interactive comment on “Chemical and physical properties of Amazon forest soils in relation to their genesis” by C. A. Quesada et al.

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This paper has received two reviews, and none of them claiming for substantial modifications. Both referees have however, suggested that the paper could be shortened. Referee #2 asks that the methods section should be shorter. We however, meant that this work should stand as the reference for soil analysis within the Special Issue “Biogeochemistry and function of Amazon forest”, where as much as 10 other articles use soil data in one way or another. Also, this is the paper were we aimed to establish the soil analysis methods for future papers within the RAINFOR and TROBIT projects, where many other papers will reference. We understand that too much detail makes the reader impatient, but at least once it is necessary to publish complete methods. Referee #1 on the other hand has suggested that the paper could be shortened in the

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discussion, but this in case that space is a constraint. The referee declares that he/she sees no problem in leaving the discussion as is, and so do we. Most of the parts in the discussion which referee #1 suggest could be dropped were intended to aid non-soil scientist audiences (i.e. ecologists) to understand these soil processes. We however, have made an effort to make these explanations more concise. As for the speculative statement, this hypothesises possible biogeochemical mechanisms that may control the nitrogen cycling in these forests, thus suggesting new ideas to be tested. We would then request to keep these parts in the manuscript, both to foster new ideas and to aid broader audiences. Referee #1 has also claimed for the data involved in this work to be made available. We accept his/her request and have included all the data on supplementary information as tables. Other minor modifications suggested by referee #1 were included in the final text. In addition to suggest that the methods section could be trimmed Referee #2 claims for “more detailed analysis in terms of geographical implications basin wide of the data collected”. Geographical implications of the soil data have been discussed in other papers of this series, and seem beyond the scope of this particular paper. Finally, anonymous referee #2 suggests that this work should be considered as a review of existing knowledge since this paper reinforces and expands previous findings on the relationships between soil fertility and Amazon geology. We disagree. This paper indeed report on such relationships, doing so for the whole Amazon basin and in an organised and methodologically consistent way. However this is only part of the story. The data shown in this work has aspects never studied before in a basin wide scale. Also, the aims of this work were achieved successfully, demonstrating that edaphic properties vary predictably along pedogenesis. It also introduces novel concepts based on inter-relationships and co-variances in the data, such as on the dependence of soil phosphorus in the openness of nitrogen cycle. Also the inter-relationships between weathering degree, soil fertility and soil physical properties were denudated, which have important implications for vegetation productivity, structure and dynamics (as shown in the third paper of this series).

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