

## ***Interactive comment on “Effects of pumice mining on soil quality” by A. Cruz-Ruíz et al.***

**Anonymous Referee #2**

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The manuscript is interesting and provides useful information about improvements in soil quality after reclamation of mine soils for agricultural use. I think that the content can be relevant to those working on mine soil reclamation and soil quality assessment. However, the article must be rewritten to correctly address the main issues. First of all, English is poor, with many grammatical and some orthographical mistakes. The manuscript must be revised by a Proficient in English. I do not understand the history of the study area and the reclamation strategy developed. You have to correctly and explicitly explain the reclamation carried out. You have to include dates, timing about reclamation, the tasks developed, the thickness of the overburden applied, if the overburden soil was mixed with mining materials. It is important to understand your work. Was agricultural use established immediately after reclamation? I do not understand the expression “new mined soil”: do you mean an area where mining extractions started? And old mine soil? What is that? It is not clear the explanation of treatments.

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Sampling procedure must be explained. How many samples per site were taken? How the location of samples was selected? Indicate as well the distance between the different sites and the area of each site. In page 1380/L 6 you say that sites were chosen on the basis of similarity of aspect. You must be more explicit. I do not understand what you mean. Provide actual data: similar slope (indicate %), similar topography, orientation (indicate), same thickness of the overburden (indicate), etc. Data must be supported by statistics, which are missing. Authors cannot visually compare data from different treatments (samplings) and conclude that one treatment shows higher values in one property than the other, overall when values are quite close. You have to indicate if there are or not significant differences. So, I miss a comparison of means using for example ANOVA and post-hoc, or a two-way ANOVA if you want to assess the effects of long-term reclamation and season. You have to make sure that you can carry out ANOVA, since residual for example must follow a normal distribution. If not, transformations are needed. Additionally, I do not understand why after developing a PCA, you do not represent the biplot of factor scores of the different PCs, to see if there is some pattern in the distribution of samples in terms of the relationship among variables per treatment. However, with the same goal, you carry out a DA. Can you explain why? Justify this approach. For the writing of the results, use the abbreviations explained in section 2.2 for treatments (although you must to improve it), so that it is better understood. You have to use the past tense, since you use indistinctly present and past. You write in the entire document “mined soil” and I do not really understand what you mean with this expression. Do you mean all soils where previously mining extraction took place and are formed by overburdened soil? Please explain better. With regard to discussion, I miss a discussion about the effect of season, just to know if the variability owing to sampling date is lower/higher/non significant compared to the long-term samplings after reclamation. I do not understand the conclusion. Rephrase it totally, focusing on the points you want to show, based on your objectives and supported by your results.

In include minor comments directly on the pdf attached

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Please also note the supplement to this comment:  
<http://www.solid-earth-discuss.net/7/C696/2015/sed-7-C696-2015-supplement.pdf>

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Interactive comment on Solid Earth Discuss., 7, 1375, 2015.

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