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Interactive comment on “Effects of fire on ash thickness in a Lithuanian grassland and short-term spatio-temporal changes” by P. Pereira et al.

P. Pereira et al.

pereiraub@gmail.com

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Thank you for requesting me to revise this document. I think it is really high quality and it has great interest to scientific community and I think it would be publishable in its current form after introducing some minor corrections. The evolution of the ashes layer thickness is an interesting scientific question because ashes have a protective role in the regeneration of the burned areas taking active part in the hydrological behaviour of the burned soils and in the evolution of the vegetation cover due to they are an important source of nutrients. This feature is ephemeral because evolves very fast and changes in a few days but is extremely important. Few works study the ashes

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layer evolution so this work has greater interest. Also, obtaining time- serie data of ash thickness in marked point's plots at different times and analyzing the spatial pattern of the variance at each time via geoestatistical tools as variograms is a novel and suitable approach to the analysis of the evolution of ash layer in burned soil researches. The scientific methods are clearly outlines, the results are sufficient to support the interpretation and conclusions. The methods and experiments are enough precise and are reproducible by fellows scientific. There is very detailed information about the statistic and spatial analyst programs and all the descriptive parameters of the models are displayed in tables of results. Overall manuscript the units, symbols and abbreviations are correctly defined and used. The references are appropriated and the authors show a deep understanding of the works more innovative in the study of the layer of ashes.

Overall the quality of the presentation is high and is well structured and clear. Also the figures and tables are appropriate in number and have a high quality being very clear. Nevertheless, in my opinion the introduction is too long and sometimes is difficult to follow the arguments. There is too much information and discursive arguments which would fit better if they were in the discussion of the paper. 1

Thank you very much for your comments, we really appreciated and helped to identify mistakes that we did not noted.

1.- Title: I am not sure about the Title suitability. I think that the title not reflect the content of the paper very well. The paper not analyse the effects of the fire in ash thickness. The authors established indirect relations between ash thickness and colour of it's as an indirect measured of fire intensity, but there are not direct measures or experimental data about the effects of fires in ash thickness. Nevertheless the authors make an important effort in establish spatial models in order to adjust the ash thickness variability to a function in each moments of sampling. This effort results in a very interesting approach but is not sufficiently showed in the title. Also I think that is important to know if the fire is wild or experimental. On my point of view it is less important the location

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of the experiment. The introduction of “Lithuanian” in the title, perhaps make it more attractive but not gives important data about the experiment as will make it if you say Lithuanian coast or Lithuanian mountain area, etc. Lithuanian grassland it is not an especial landscape or ecosystem. Perhaps if the authors introduce the spatial models and the type of fire in the title would reflect better the content of the paper. One option would be: Short-term spatio-temporal changes and modelling of ash thickness pattern of prescribe fire in (lithuanian) grassland.

We agree with your comments and we changed already the title according the first reviewer suggestions to “Spatio-temporal distribution of ashes in a Lithuanian burned grassland, evaluating different data collection and interpolation methods”

2.- Abstract: In my opinion the abstract is too long, perhaps if the authors removed some sentences the abstract will improve so much. For example, I think 4-7 lines should be removed. Also I think the summary should be shortened and tidy: 1. Very short arguments in order to introduce the experiment and main objective; 2. Explain the most important characteristics of the fire and plots; 3- The most important results, would suffice.

Please also note the supplement to this comment:

<http://www.solid-earth-discuss.net/4/C762/2013/sed-4-C762-2013-supplement.zip>

Interactive comment on Solid Earth Discuss., 4, 1545, 2012.

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