

## ***Interactive comment on “Effects of land use changes and conservation measures on land degradation under a Mediterranean climate” by Y. Mohawesh et al.***

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Review of Mohawesh et al: Effects of land use changes and conservation measures on land degradation under a Mediterranean climate

General Comments: In general this manuscript is well written and reads nice. However I think the authors need to reflect more on their work and also critically look at the data that they are presenting. My main concern with the whole setup of the research is that the authors assume that the soils were everywhere exactly the same prior to any land use changes or conservation measures. And that all the differences that are now found are the result of these changes in the landscape. This however is debatable. In

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principle maybe you could argue this assumption, but at least there should be some mention of the uncertainty involved in this approach. Secondly I think there is a flaw in the interpretation of the SOC in the AH. The data shows that the AH the percentage of SOCM has reduced in the areas where there is plowing. However, at the same time the AH horizon also became thicker: how much of the SOC has then actually been removed?? Maybe only diluted by mixing the soil horizon underneath through the AH horizon?? An additional calculation of the total amount of carbon in the soil column would be a more fair number of the change of SOCM in the soil due to land management. Specific comments: Abstract: Reduce the number of times you use the word ‘different’ in lines 7-11 Introduction: make the aims at the end more specific, break up in sub aims Material and methods: p 6 l7-8 sentence land fragmentation. . . . Out of place: remove P 6 line 6: long time ago: specify!! This is not scientific P 8 first part: these are research questions: should be in introduction, not here Results: P8, l 18: non-agricultural land use: what is that??? P9 l 1-4: expand this section P9 l 5-6: = discussion, should not be here Remainder of p 9: here comes the issue of the plowing, which is THE main influence on the AH depth. Has nothing to do with land degradation. After the first time plowing, you would have this effect. Obviously the non-plowed forest soil is thinner (with higher, non diluted SOC) P 10 l 1-5: here you state that the difference may also be due to topographic settings and NOT from land use difference. . . undermining the rest of the story. I think you are right: most likely there are differences in soil on the basis of landscape setting. More reflection should come on this topic in the discussion (so not here in the results) P10 l 10: see above: this may actually not be true. Only the concentration has decreased, maybe not the total SOM? P11 l 22 change title in ‘Zone specific results. . . . P11 l 25: tell again with zone is what in terms of rainfall and soil texture: how variable do you think the soil texture was to begin with?? Before the landuse and conservation changes? P12 : the numbers of SOC are Very detailed. I would reduce it with one digit. Discussion: In general: very poor discussion: only made use of 3 (!!) references. There is so much literature available on soil and water conservational techniques and their impact

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on soil properties and also on the impact of land use changes on that. You have to put your work in the literature context. Texture: is there actually texture fractionation possible with this soil??? Not all the same?? Conclusion: P 17 l 25-27: discussion, move to there. Rewrite the conclusions after making the discussion section into a real discussion (not only a summary of the results) Tables: I would recommend to reduce the number of tables and change some of them into graphs. Figures: you could integrate fig 1 and 2. And in any case figure 2 does not have a legend.

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Interactive comment on Solid Earth Discuss., 7, 115, 2015.