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Interactive comment on “Microbial biomass and basal respiration in Sub-Antarctic and Antarctic soils in the areas of some Russian polar stations” by E. Abakumov and N. Mukhametova

Anonymous Referee #1

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The manuscript is generally innovative, the methods are sound, the data analysis appropriate, tables and pictures of good quality and the conclusions supported by the data. The relative shortness of the data collection period aside, the main weakness of the manuscript is the lack of discussion of what is presented. Ask a native Englishman for the linguistic revision of the whole text.

page 870 Abstract A good Abstract should have five parts –background information, the purpose of the study (objectives), some methods used, the most important results, and conclusions/recommendations. As written this manuscript does not have any conclusion or recommendation and there is not methods used to measure soil properties. The results parts is too long comparing with the other parts. Suggested wording changes

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are given below.

Line 1: change “pedological investigation “with “soil research” and please end the sentence. Introduction Page 871 Line 16: change “ahumic” with “a humic” Line 8 and line 9: “here soil” where? In manuscripts you should explain the codification of the study site. Line 25: the reference Abakunov et al., 2010 is making reference to 2010a or 2010b? Line 13. If possible in write some information about the studied background

Page 872 Line 7: Gilichinsliy et al., 2009 is not cited in references part Line 9: “temperature are” please use past form to refers to results obtained previously. Line 10. Please add (.) after “artic soil According” Line 28. Please use capital letter in objectives Page 873. Line 5: Change “The study sites are situated” with “Three study sites were situated” -Please codify the three study sites with a capital letters to clarify the tables and the results, and after that use this code to discuss about results obtained. For example: Russkaya valley (R), Larsemann hills (L) and King-George (K). -Explain which study sites correspond to sub-Antartic (SA) or Antarctic (A) conditions to make simply the discussion about results. Page 874 Line 4: Substitute ” Abakunov,Andreev, 2010” by “Abakunov and Andreev, 2011” Line 8: Abakunov, 2011 it is not cited in references Line 10. “many authors” but is only cited one research paper. Line 10. Substitute “ Casanov-Kathny, Cavieres, 202” by “ Casanov-Kathny and Cavieres, 2012” Line 11. ...this “d” to be classified... What is that d means? Line 7 to 18: this paragraph it does not correspond with any material or methods used in this research. Please remove or change to introduction. Line 15: “Progress plot” Again, Please unify the codification for study sites. - Please codify the soil samplings (S1) from 14 January’08 to 25 February’08 and (S2) from 4 December’08 to 12 February’08. - How many samples were taken from each soil sampling? N=? Line 23. Abakunov et al., 2008 is not cited in references. Line 24. the reference Abakunov et al., 2010 is making reference to 2010a or 2010b?

Page 875. -How many horizons were per soil profile? Line 6. Add (.) at the end of the sentence. Line 10. Tyurin; Walkley and Black to references Line 11. Change “Kjeldal”

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with “kjeldahl” Line 18. Change “ Metabolically” with “metabolical” Line 19. Change “respirator” with “respiration” Line 19. Substitute “Jenkison, 1976” by “ Jenkinson and Powlson” - What method is used to measure the BR? And pH? And Hygroscopic water? - Fine earth (Table 1) is not explain in methods part - Anova test is necessary between sampling and treatments? - T-Test was done between Sub-Antartic and Antartic soil, but it does not mentioned before which study sites are sub-Antartic or Antartic.

-The authors measured basal soil respiration (BR), but appear not to have recorded soil temperature during the experiment in the period of study. The possible effects of temperature of this kind of “special” soil needed to be considered.

Page 876 Line 15. Change Ornhitosols whith Ornhitosols Line 11 to 19. Please make reference this paragraph to a figure or table. Lines 20-25. Make reference to Table 1. Page 877 - In result part it does not mentioned about color, pH and Hygroscopic water Line 9. the reference Abakunov et al., 2010 is making reference to 2010a or 2010b? Line 10. “This is very important for soils which are known as soils with low fine earth content” explain why the good correspondence between organic carbon and absorbed water levels is important for this kind of soils, please. Line 11. the reference Abakunov et al., 2010 is making reference to 2010a or 2010b? Line 16. A new denomination for study site appears “ continental oasis’s” what is this study site, Russkaya valley (R), Larsemann hills (L) or King-George (K)? clarify the codification, please. Line 20-25. This results are showed in Table 2. Please make reference to Table 2 in that paragraph. Page 878 More discussion is needed for the BR and Cmic results, this is a very pioneering and unique study and it worth making the effort to improve this part of this interesting results. Line 25. Substitute “investigation shows” by “research sowed” Page 880 Please see the references guidelines previous to resend the paper. Bockheim 2013. It is not cited in the manuscript Table 1. Please rewrite the table with new study sites codification and clarify the sub-Antartic and Antartic sites Table 2. Please rewrite the table with new study sites codification and clarify the sub-Antartic and Antartic sites. Please make reference in the manuscript. Add a footnote with the statistical

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differences after the T-test analysis done. The depth from each soil horizon is required in this table and the soil temperature if it is possible get it. Figure 1. Please include new study sites codification and clarify the sub-Antartic and Antartic sites. Figure 2. Is not cited in the whole manuscript.

Interactive comment on Solid Earth Discuss., 6, 869, 2014.

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