The Cryosphere Discuss., 9, C322–C324, 2015
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The Cryosphere Discussions
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Interactive comment on "Brief Communication: Future avenues for permafrost science from the perspective of early career researchers" *by* M. Fritz et al.

Anonymous Referee #2

Received and published: 3 April 2015

General comments The overall quality of the discussion paper is high, the text is well structured, the authors' point of view is clear. The paper is recommended for publication after discussion following the specific comments.

Specific comments The article contains the attempt of extracting the most perspective topics of future permafrost science progress supporting. The grouping of original permafrost research questions in the "Supplement of Brief Communication. . ." is enough strange. It looks like "Green" and "Large": the groups are not comparable and stay in different categories. Some questions are not suitable to group name, e.g. the question "Can permafrost effectively be used to depose tailings and other toxic materials" must belong to Engineering or Ecology groups, not Physical Processes.

It seems that the key words using is not useful because the different specialists have the different understanding of the same terms. The carbon cycle specialist uses the "permafrost degradation" term as a proved process, like self-evident axiom. On the contrary, the permafrost mapping specialist understood the weakness of actual data to show the degradation as proved fact. He tries to drawing-up the sophisticated methods to integrate the sparse pointed data on different reaction of permafrost to climate change. The modeling specialist has the third point of view.

However the "dialogue between research and the public" is not a priority in case of absence of real scientific progress (see page 12, line 16). In the conclusion is not evident what kind of breakthrough is expected in permafrost science. In medicine one of actual goal is the rising of human lifetime. What about permafrost science? It's depend on the objects of investigation that are need be classified. E.g. geocryological bodies, phase transitions mechanisms, geocryological phenomena, geocryological landscapes, ground temperature regime, mechanical processes within the phase transitions etc. May be the sectorial principle will be useful when each branch of science formulates proper priorities in permafrost territories. After them the integrative priorities will be drawing-up in interdisciplinary programs and in the sites of intensive investigation, like Toolik-Lake in Alaska. _____ Technical corrections Page 12 - line 13: In fact IPA coordinates already the initiative by action group activity. No other evident technical corrections. _____

1. Does the paper address relevant scientific questions within the scope of TC? Yes 2. Does the paper present novel concepts, ideas, tools, or data? Yes, this ideas are new in permafrost science developing 3. Are substantial conclusions reached? Partially, because the conclusion is not a avenue but the statistic of the foggy feelings 4. Are the scientific methods and assumptions valid and clearly outlined? Yes 5. Are the results sufficient to support the interpretations and conclusions? Partially, because the collected keywords are ambiguous. 6. Is the description of experiments and calculations sufficiently complete and precise to allow their reproduction by fellow scientists (trace-

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ability of results)? Partially, see paragraph #5 7. Do the authors give proper credit to related work and clearly indicate their own new/original contribution? Yes. Why Chinese and Russian people were not included in the synthesis process? 8. Does the title clearly reflect the contents of the paper? Yes 9. Does the abstract provide a concise and complete summary? Yes 10. Is the overall presentation well structured and clear? Yes 11. Is the language fluent and precise? Yes (unfortunately I am not a referee in this question) 12. Are mathematical formulae, symbols, abbreviations, and units correctly defined and used? N/a 13. Should any parts of the paper (text, formulae, figures, tables) be clarified, reduced, combined, or eliminated? No 14. Are the number and quality of references appropriate? Yes 15. Is the amount and quality of supplementary material appropriate? Yes

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Interactive comment on The Cryosphere Discuss., 9, 1209, 2015.