

## ***Interactive comment on “Brief Communication: Future avenues for permafrost science from the perspective of early career researchers” by M. Fritz et al.***

**M. Fritz et al.**

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### **Reply to Anonymous Referee No.2**

We are grateful for the review and acknowledge your comments and suggestions. You will find all replies or changes that have been made below. Reviewer comments are cited in italic font.

Best regards,  
Michael Fritz

(on behalf of the co-authors)

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**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.*

In the beginning of this process the authors had set up a Google Form to receive community input and initial questions. There, categories were defined as the ones presented in the appendix. Online participants had the chance to choose the most appropriate category, or suggest their own; therefore the sorting was not done randomly by the authors. Instead, we have attempted to follow the intentions of the initial question creators as closely as possible. We agree that many of the questions span multiple categories, or that researchers of different domains may debate which questions belong where. We thank you for your comment on this topic, and feel this is part of the richness of discussion and critical reflection one can have during a cross- or inter-disciplinary activity such as the one detailed within this paper.

*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.*

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We are uncertain about which keywords the reviewer is referring to, specifically. Some of the keywords in our manuscript are the headings of our categories (i.e. Physical processes, Biogeochemistry, Social Interactions and impacts, Engineering, Ecology, Modelling) under which participants were asked to submit question(s). We proposed a set of topics and specialties to later evaluate to breadth of questions and interest the audience represents. These topics came from existing literature, and from the CliC/IPA initiative 'Permafrost Research Priorities'.

We do agree with the reviewer that certain terms can be perceived differently across various domains, and indeed feel that this is present in any cross- or inter-disciplinary activity. However, we view this as part of the richness in bringing together ECRs from many disciplines, departments, universities, countries, cultures, etc. The use of key-words often encouraged conversation around various meanings of terms from the viewpoints of mapping specialists, to modellers, to field-scientists, and others. We agree that the difference of perception of various terms may lead to confusion and disagreements, though we feel that this can also lead to enriched conversations, and careful reflection by both parties about the words they use to communicate their current perception of permafrost science.

*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).*

This has now been changed to: Disseminating the knowledge, i.e. to communicate our main findings into society for a dialogue between research and the public, is a priority, along with active and ongoing scientific research.

*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*

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*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.*

This is an interesting point of view, though one that we did not explore in our activity nor in our paper. We sought to provide a space and context for discussion regarding the future of permafrost science for ECRs. We felt this was an effective and interesting topic for which ECRs could be actively engaged, and also via which we could encourage on-going interest throughout their scientific careers. We feel that exploring what a "breakthrough" or ultimate end goal of permafrost science is potentially a large question, one that could be explored through its own forum in the future.

**Technical corrections:**

**Page 12 - line 13:** *In fact IPA coordinates already the initiative by action group activity. No other evident technical corrections.*

This has now been changed to: IASC and the IPA, together with SCAR on bipolar activities, should coordinate the research agendas in a proactive manner engaging all partners, including funding agencies and policy makers.

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

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