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## ***Interactive comment on “Smartphone applications for communicating avalanche risk information – a review of existing practices” by M. K. M. Charrière and T. A. Bogaard***

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We thank the reviewer for the critical and constructive comments. We are pleased that in general the work was profound and thorough. The questions and critics have been very helpful. We see that the objective of the research and the strict boundary conditions of this study were not explained well enough. Therefore, we will edit our manuscript as such that this becomes clearer. Below we reply to all reviewer’s comments in detail.

The objective of this paper is to provide an analysis of how those smartphone applications are designed and evaluated by their designers/providers, as written in the line

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6037/1-2. Therefore, we think this study does accomplish this objective. It could be, more expectations were perceived. Therefore, we will make it clearer in the abstract and introduction. The goal of this study is not to proceed to an effectiveness's evaluation of the applications. However, as it is specified in lines 6938/5-9, this is a needed further research step. It cannot be expected from this paper that this step is realized as it was not the research objective.

Considering that the objective of this paper is to analysis the ways these smartphone applications are designed and evaluated by their designers/providers, a research design based on semi-structured interviews is appropriate and coincide with the objective. If it was expected by the reviewer that this paper would provide a concrete evaluation of the applications, the methodology would not be appropriate and a longititudinal research design would be an appropriate methodology as suggested in lines 6938/5-9. The authors would like to repeat that this was not the objective of this paper and are sorry that the reviewer's expectations on this point are not fulfilled.

The title will be reformulated to avoid wrong expectations from readers.

Thank for your suggestion to proceed to a native speaker check. This will be conducted.

As suggested the abstract will be deepened and clarified.

The reviewer is correct that avalanches do not occur in all mountains. If there is no snow, there are no avalanches. This will be added.

A listing of pros and cons of each functionality can be added. The authors want to precise that this feature will present the opinions related to pros and cons of the experts that were interviewed only. The goal of this paper is to show how real avalanche communication is constructed and not how in theory (which is often not empirically based) it should be conducted.

An effort will be made to improve the structure of the tables. Some figures showing the apps content will be added in order to get a quick glance of the look and feel.

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A more detailed description of the figure 1 (page 6945) will be provided. The order of the icons is wrong, thank you for pointed this out. This will be corrected.

The table is edited by the journal. However, it will be separated in two or three tables to improve readability and structure.

The integration of tables and illustrations embedded in the text will be conducted at the edition phase by the Journal.

The European perspective could be highlighted (note that one aspect of this perspective is mentioned on lines 6935/10-11). However, this paper has the objective to review the existing smartphone applications. The authors do not believe that a stronger focus on countries which do not provide such communication tools is relevant in the context of this paper.

The link between the advantages of wireless technologies and the development of smartphone applications for avalanche risk communication will be made clearer for the readers to understand the logic of our argumentation. By “and by extension communication”, we mean that we believe that there are similarities in the effectiveness of risk education and of risk communication. “Avalanche damages reduction” refers to the ultimate goal of avalanche risk communication, i.e. the reduction of losses of lives.

There is a methodology section which is clear as said by the reviewer him/her-self. Improvement of the objective framing will make the concept clearer. A short introductory paragraph will be added where appropriate.

We are not fully sure what is referred to here: “If statements are used to explain a certain issue then they must be cited correctly and not in a crude form”. In 6924/5-6,8 and in 6925/1 we describe (literally) the opinion of the developers of the snow avalanche apps and we refer to the specific app number.

The reviewer is right about his comment on line 6932/9; this is not clearly formulated. With our statement on the existing communication framework, we mean the existing

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strategy that the avalanche centers currently have. This awkward formulation will be made clearer.

Mentions on technical issues such as coverage, on/offline mode, extreme weather conditions and usability will be added to reflect on the utilization of smartphone applications.

On line 6935/12, “another source” does not refer to the sources that the authors used. It is written that the authors do not know, for most applications, from what source, the applications’ designers decided to use a tiered approach in their design.

This paper includes elements on the topic of maps. As we report, not all of the experts interviewed believe that maps are appropriate to convene effectively. There is not incentive from this result to give more focus on maps in particular. Spatial referencing is more a technical issue for the forecasters and does not a significant influence on the discussion on communication, which is the core of this paper.

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Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 3, 6917, 2015.

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