

***Interactive comment on* “Influence of surface heterogeneity on observed borehole temperatures at a mountain permafrost site in the Upper Engadine, Swiss Alps” by S. Schneider et al.**

S. Schneider et al.

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1.) Title: Rethink if the term "surface heterogeneity" is appropriate in your title. The paper is basically dealing with subsurface conditions. Most figures and almost all your scientific explanations are highlighting temperature variations below the surface. I suggest to change the term into "surface and subsurface heterogeneity...".

-> Influence of surface and subsurface heterogeneity on observed borehole temperatures at a mountain permafrost site in the Upper Engadine, Swiss Alps

2.) Abstract: write TTOP-concept in full letters when using the acronym for the first time

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-> The influence of the material on the thermal regime was investigated by borehole temperature data, the temperature at the top of the permafrost (TTOP-concept) and the apparent thermal diffusivity (ATD).

3.) page 2630, line 25: "Permafrost degradation in bedrock is caused by frost weathering..." This statement is not correct, but the change of phase of water in bedrock from liquid to solid and vice versa plays a critical role rock strength reduction (Harris et al.2009). Please rewrite this paragraph.

-> In addition to temperature rise and phase changes of ice to water, permafrost degradation in bedrock is influenced by frost weathering leading to a reduction of rock strength as well as by advective processes by percolating meltwater.

Interactive comment on The Cryosphere Discuss., 5, 2629, 2011.

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