

Reply to comments by Reviewer and Editor of “Technical Note: A simple generalization of the Brutsaert and Nieber analysis”

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1 Introduction

We would like once again to thank the Reviewers and the Editor for the valuable comments and for bringing to our attention the very good work of Harman et al. As we did before we write below our answers in blue for better visualization and the Editor comments in black.

Apart from the answers to the specific comments, we also included the word “us” in line 41 and made a minor change in line 21 in order to improve the writing and make understanding easier for the reader.

We also felt the need to include an acknowledgement to our colleague Ailín de Zárata at the end of the paper.

2 Answers to editor’s comment

While a general discussion of the applicability and limitations of the BN method is outside the scope of this technical note, I believe that the reader should be pointed to the importance of spatial heterogeneity in addition to the limitations already mentioned (Harman et al. WRR 45, W09404). Perhaps the authors would also like to highlight potential use of their improved formula for purposes other than deduction of catchment-scale effective parameters from flow recession, such as simulations of drainage and water table dynamics from hypothetical hillslopes and improved understanding of hillslope processes.

The citation to the work by Harman et al. and the comment on the spatial heterogeneity are now made in lines 72–77.

The comments on potential uses of our formula are made in lines 95–101.

In addition, I would like the authors to address a couple of points I have myself:

L. 75: “applied with (i) and (iii)” is not very clear. The meaning of (i) and (iii) is mentioned right at the beginning of the introduction but no equations are given. Could you actually provide equations that represent these solutions and write “BN77 method based on Solutions (i, Eq. x) and (iii, Eq. y) of the Boussinesq equation”

The equations were added in lines 23–36 and the specific sentence mentioned was changed in line 92. Because one equation had to be moved we also had to make a change in line 153, which previously contained Boussinesq’s 1903 solution (now Eq. (3)). To follow the same line of thought of this comment and make each solution clearer, we also made a small change in line 52.

L. 180: “investigate” instead of “invetigate”

This was corrected in line 197.

L. 184-187: I had trouble to follow here. What do you mean by "deviates considerably from the true value when H_0 is 40% or greater of H" and by "while this deviation occurs when H_0 ..."? What does "deviates considerably" mean and what is "this deviation"? I think what you mean is that the BN77 estimates of k_0 and n_e under-estimate the numerical ("true") values more and more as ϕ_0 increases, starting with $\phi_0 > 0.3$ and $\phi_0 > 0$ for k_0 and n_e respectively. Did I understand correctly? For better clarity, you should also explain k_0 , n_e , and ϕ_0 in the figure captions.

Yes, the meaning of the sentence was exactly that, although, re-reading it, it was indeed a bit confusing. This part re-written in lines 201–207. The captions of Figures 2 and 3 we also changed to include a brief description of k_0 , n_e , and ϕ_0 .