

Interactive comment on “How Alexander von Humboldt’s life story can inspire innovative soil research in developing countries” by Johan Bouma

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Reaction by Johan Bouma.

I thank Peter Finke for his positive comments. I wonder "what" has been penetrated by: "penetrating observations and conclusions". Traditional, stereotype views, perhaps? If so, then I am happy that at least one reader has noticed my intentions. I will respond to comments made but will finalize the manuscript after July 25 when other comments can be considered as well. I should note that a Forum article has a maximum of 2500 words. I had to substantially cut the length and the figures of the original submission, that was based on the Humboldt lecture at EGU2017. Thanks to the editors that al-

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lowed an overdraft to 3400 words.

P3, line 27: “post-truth”, “fact-free” and “alternative facts” are widely being discussed in the press in relation to, for example, populism, Trump, Brexit, inoculation etc. Such examples don’t fit in a paper like this. I have focused on what I believe to be the underlying reasons that are also relevant for the soil science profession. P4, lines 12-13: Yes, a rather outspoken opinion. The term “developed” implies a completed process and “developing” implies a certain trajectory. I find that difficult to accept, thinking, for example, of the increasing income gaps and other issues in our post modern societies. Of course, materially we are way ahead of developing countries but we need additional development as well, be it in a different direction. Let the reader chew on this. P4, lines 22-23: Yes, quite correct. I will add “former”. p.5, line 13: Bypass flow originates from continuous vertical cracks that allow much faster aeration at depth than in a non-cracking soil without continuous macropores. When water is added it reaches great depth quickly as well, flushing acid water very rapidly. Modification of surface structure, discontinuing vertical cracks, can overcome this as a matter of- indeed- risk reduction. Text will be modified. p.5 lines 17-19. Text added: Stein et al (1988) applied geostatistics to interpolate from points to area data using units of the soil map as a basis for sample stratification. It allows one to optimally use uniformity in soil units, in particular in terms of spatial variability of the soil variables. In this way the study contributes to collect information more efficiently and run simulation models in a more parsimonious way with quantitative uncertainty. p.6, lines 5-6: here the earlier comment (p.5, l13) applies as well, in terms of a focus on management trying to manipulate bypass flow, that differs depending on variations of soil types within the area. p.7, line 22: Yes, “variation” is appropriate. p.9, line 10: Text will be expanded. To demonstrate the importance of soil input in interdisciplinary studies a base level should be included to show what happens if no or poor soil data are used in models. We never do this. P9, line 29: The need for “new” research. I don’t think soil scientists should be re-educated but we should change the overall system, as is- by the way- already proposed in the Netherlands by a new research protocol not only emphasizing publications but also

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“societal relevance”. You can’t blame researchers for trying to advance their careers. Our quoted 2015 paper shows that sometimes new research is crucial (and without new research a science will die!) but if existing methods do the job of contributing to reaching SDG’s: fine! P10, line 11: yes, quite correct. Physical geographers make important and unique contributions to better understand soil-landscape relations.

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