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Hydrology and Earth System Sciences Discussions

Interactive comment on "Characterization of the field saturated hydraulic conductivity on a hillslope: measurement techniques, data sensitivity analysis and spatialcorrelation modelling" *by* C. Fallico et al.

Anonymous Referee #1

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As there has already been a full review (anonymous #2) and a reply, I have decided not to prepare a full independent review, but rather comment on the discussion process so far and add suggestions and additional critique where necessary. After having read the manuscript as well as the review I can only fully agree with the points made by Referee (#2). In particular I want to emphasize the following questions: "What are the lessons learned in this study?" We already know about spatial variability of ks in the field, we know about differences in derived kfs from different measurement techniques (also having e.g. different spatial support) and we also know about auto-correlation of K in the field. So what is the main purpose of the manuscript? Adding just some more data from another field study (valid in itself, but not necessarily publishable!). Exploring

the reasons for differences in different techniques? I don't see that question answered! Or exploring the uncertainties associated with the derivation of ksf. Here I feel that the major comment (3) of Referee #2 is very important. Adding some white noise on the data in order to simulate measurements errors is an important, but only first step in an uncertainty analysis. Adding auto-correlated errors as suggested by Referee #2 is certainly important next step. I feel that addressing the problem of uncertainties due to violations of the underlying assumptions made within the infiltrometer data analysis (particular the homogeneity of the soil hydraulic properties) would be even more important as I believe those are dominating factors. Analyzing this issue - e.g. by using 2D simulations of the infiltration processes in layered or structured soil profiles and analyzing those forward/virtual data with the same methods presented here - would in my view make this paper more interesting for the readership of HESSD. In the present form I cannot suggest the manuscript to be published.

Interactive comment on Hydrology and Earth System Sciences Discussions, 2, 1247, 2005.