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Interactive comment on "Geostatistical modeling of spatial variability of water retention curves" *by* H. Saito et al.

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First of all, we are really grateful for comments from Dr. N. Romano who is an expert on the topics discussed in the manuscript. We believe that by addressing these comments, the manuscript has been improved considerably.

We were aware of most of literature mentioned by Dr. Romano here. In the revised manuscript, we cite and discuss them.

Thank you for the comment 2). This is exactly why we started this work. Interpolating or simulating retention parameters, such as n and alpha in the VG function, should be done with extreme care. In many studies, however, those parameters were variables of primary interest. We wanted to show that even though it may require more work,

dealing directly with volumetric water contents is the right way to do.

In reply to comment 3), in Hills et al. (1993), although they do not explain the reason of inconsistency, it clearly says that, from -10 to -300 cmH2O, undisturbed soil samples were used, while disturbed samples were sieved, air-dried, and used with a pressure plate apparatus to determine retention characteristics in pressures ranging from -1000 to -15000 cm H2O. It is, from our experience, clear that inconsistency shown in retention curves arises from using different samples that are either undisturbed or disturbed. As for the effect of inconsistency on the estimation of parameters, there should be an impact on results as all data points are equally weighted when retention model functions are fitted to data. More important issue, in our opinion, is how errors introduced when parameters are estimated propagate thorough interpolation. This should be a good research topic in the future.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 5, 2491, 2008.