

Interactive comment on “Spatial variation of shallow and deep soil moisture in the semi-arid loess hilly area, China” by L. Yang et al.

Anonymous Referee #2

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This manuscript analyzed spatial variations of soil moisture content in shallow and deep soil layers based on soil moisture data collected in a semi-arid watershed. The topic is of general interest to Hydrology and Earth System Sciences. The work is important to the study area as it is experiencing large-scale vegetation restoration. However, several shortcuts are presented in the current version and leave some room for improvement. Specific comments are shown below:

1. The logic and structure of the paper are sound, however, a native English speaker should be asked to edit the paper.
2. I would appreciate some pictures to show the study transects.

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3. I agree with the comments posted by other referree. Some research questions such as how the environmental variables affect SMC could be answered better through canonical correspondence analysis.
4. Why shallow SMC samples were taken from April to August, while the deep SMC were only taken in August?
5. Authors indicated “There were three separate sampling sites in each transect on the upper, middle and downhill slope”. So the total sampling sites should be 3 sites * 8 transects. Please state in the method section, among these 24 sites, how many sites for each group, and how many sites for each land cover type in each group? (“six groups of NG, PO, AF, AL, KP on different slope aspects were selected to compare SMC affected by the slope aspect.” And “four groups of NG, AL, CP, and CA forestland in different slope gradients were selected to compare the SMC affected by slope gradient.”)
6. A total of 30 soil samples were collected from each sampling point in August for the deep SMC. I wonder how many soil samples were collected in each sampling point from April to July for the shallow SMC?
7. “The depthaveraged SMC of each experimental site at each measuring time was calculated by Eq. (1). . .” Authors indicated earlier that they have taken samples from three sampling points from each site. But the equation one did not indicate the average of three sampling points, so the authors cannot say that equation is for the experimental site. It should be the depthaveraged SMC of each experimental point instead.

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