

Hydrol. Earth Syst. Sci. Discuss., community comment CC3
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Reply on AC1

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Community comment on "Rill Erosion on Slope of Spoil tips: experimental study of runoff scouring erosion in multiple times" by Yongcai Lou et al., Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2021-399-CC3>, 2021

Thanks for the careful reply. Authors do much job to reply my queries. But, I still stand by my opinion about rill network. The authors stated "For the slope of the spoil tips, when there is no obvious upslope inflow, the distribution of rills is also random, and the rill network structure has some similarity with the natural slope (Fig. 2a)". How did you confirm that the rill network has some similarity with Fig. 2a? how is it measured?

Under natural condition, the rill development is caused by rainfall and rainfall flow, which is a common and also be confirmed by many soil erosion scientists. I agree with your point that the inflow is the main erosion force due to the little infiltration of platform. But where is the inflow from? Rainfall is the original force. without the rainfall effect, the rill still can developed on the spoil tips, but as we know, the rainfall can form the interill sheet flow that significantly rill network structure. For example, the interill flow can enter into rill channel and cause rill bank collapse. And, this is certain event. Therefore, I still stand by the rill network structure under rainfall and inflow condition (this is a actually natural condition that reflects the actual situation) is completely different from that under only inflow condition. So, the results from the paper against the natural laws and can not reflect the actual scenario. As you presented in the reply, we find there are less intersections in your results than other studies, which was mainly due to the fact that the inflow at the beginning was divided into several parts, and then each part flow controlled a rill development, so they are few connections between their development. But, if rainfall occurs, the rill network structure differs! So, I would like to suggest that the experiment can be completed under natural rainfall or modelling rainfall and inflow on a platform-slope slopes. it is not so appropriate to publish the work in the HESS.