Hydrology and Earth System Sciences Discussions

Hydrol. Earth Syst. Sci. Discuss., author comment AC4
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Reply on RC2

Jose Ramon Barros Cantalice et al.

Author comment on "Resistance parameters and permissible velocity from cohesive channels" by Jose Ramon Barros Cantalice et al., Hydrol. Earth Syst. Sci. Discuss., https://doi.org/10.5194/hess-2022-275-AC4, 2022

Reply to comments.

Comment 1. Thank you for your comments, and recognizing the effort in working in a completely cohesive condition, we will write some sentences to improve in this sense.

Comment 2. Thank you for this comment; I will look for some numerical simulation models to work in this direction.

Comments 3, 7, and 8. Each block consisted of four flow levels applied and four repetitions totaling 16 runs. The n = 16 runs are statistically significant, meaning that the results were applied to statistical analysis, a variance analysis (ANOVA), and two-way analysis of variance in randomized blocks. The variance analysis had appointed by the significance of factors (level applied flows).

The letters a, b, and c show the statistical significance of the average value. For example, in table 4, the highest level applied (Q4) shows different statistical to shear stress (letter b). In contrast, the other flow applied (Q1, Q2, and Q3) were statistically the same (letter b), showing that the shear stress produced by Q1, Q2, and Q3 not had been a difference. The legend is below each table; for example, Values followed by the same letter in the column do not differ by Tukey test (Tukey, P < 0,05).

I did not make an effort to obtain the relationship; I did regressions.

Comment 4. Yes, L in lines 174 and 246 means Liter.

Comment 5. Figure 3, page 13. Sorry, the lateral axis is hidden. I will improve it.

The lateral axis shows the mean flow velocity.

Comment 6. Yes, f in figure 4 is the hydraulic resistance represented by the Darcy-Weisbach coefficient.

Comment 9. Thank you. I will improve these exponents in the expressions.

Comment 10. Equation (32) results from hydraulic experimental parameters on a highly cohesive channel (60% clay proportion) and dimensional analyses. It can be used safely

to find permissible velocities for applied flows between 70 and 545 Liter/minute in cohesive channels until 60 % clay content. Equation 32 was obtained by dimensional analyses, which guarantees that it works well to find permissible velocities in the previously mentioned cohesive conditions.