

April 13, 2022

Memorandum

To: Dr. Jorge Isidoro, Editor, Hydrology and Earth System Sciences

Subject: Revision of hess-2021-588

Dear Editor:

We have carefully revised our manuscript following all suggestions and comments, checked the English language and improved the writing of the manuscript by the help of a native English speaker. The manuscript has been improved substantially by addressing the constructive comments. The followings are responses to the comments, and the line number is according to the revised manuscript.

Response to Editor:

Minor revision

Dear Authors.

As said before, this theme fits well in the contents of this special issue, and the manuscript presents an interesting experimental study on non-Darcian flow characteristics in permeable stones.

I've read the revised version of the manuscript with attention. In my opinion, the manuscript is interesting, and the minor issues detected by the reviewers were generally well addressed. However, the quality of English is clearly below the minimum required for an international journal such as HESS. Some sentences are repetitive, awkward, confusing, too long, or simply not elegant. Moreover, there are too many inconsistencies in the way things are presented (e.g., the meaning of variables shown in equations; the font size in the figures). Apart from this, the authors are not following many of the guidelines provided by HESS, an issue that also needs to be addressed. Regarding the latter, I urge the authors to carefully read and follow HESS' guidelines for authors before making further changes to the manuscript.

I invite the authors to improve the syntax and grammar of the text. Many phrases must be rewritten for the sake of ease of reading and comprehensibility. Please take also into attention the specific comments listed in the attached file. A paper should be joyful to read, and this manuscript still does need work to attain that level.

Non-public comments to the Author:

I suggest the authors find a professional editing service, or a native English speaker within this field of knowledge, to assist in producing a better manuscript. Honestly, I liked the science in the paper, but it is poorly presented.

1. When using scientific notation use 10^n instead of En). This can be noticed all along the manuscript, including in the figures and tables.

Reply: Implemented. We have carefully revised the presentation of the scientific notation for the manuscript, including all the figures and tables.

2. Please check if all the variables are listed in the notation list.

Reply: Implemented. We have carefully checked the whole manuscript and modified the notation list, the relevant variables and units were added. Please see [page 36 and lines 621-625](#).

3. I suggest incorporating the author's reply to the first query of Reviewer #2 in the manuscript (in the Introduction or in section 2.2)

Reply: Implemented. We have added the relevant replies to the section 2.2 of the manuscript. Please see [page 9 and lines 207-209](#).

4. Lines 24-25. Please rewrite this sentence and avoid repeating "mesh size"

Reply: Implemented. We have rewritten the sentence. Please see [page 2 and lines 27-29](#).

5. Line 24 and 49. I suggest using "...mercury injection technique ..." instead of "... mercury injection experiment ..."

Reply: Implemented. We have adjusted some of the expressions. Please see [page 2, 3, 15, 35 and lines 38, 54, 322, 584](#).

6. I strongly suggest not starting sentences with "And..." (e.g., Lines 181, 270, 278, 293, 312, 357, 428, 441, 528, 589)

Reply: Implemented. We have corrected these sentences and the whole manuscript was checked.

7. Line 129. Please use "five" instead of "5".

Reply: Implemented. We have corrected it. Please see [page 6 and line 137](#).

8. Line 178. An "a" is missing between "permeable" and "stone" (unless the authors are referring the preparation of a sample in general; if so, "stones" should be used).

Reply: Implemented. We have made corrections referring to the preparation of general samples. Please see [page 9 and line 184](#).

9. Lines 180-183. Please revise these sentences. Saying that "Permeable stone is widely used in [...] ecological effect research" does not sound good

Reply: Implemented. We have rewritten these sentences. Please see [page 9 and lines 186-190](#).

10. Lines 183-185. This sentence is tremendously ambiguous, as “certain connected pore space” and “certain permeability” does not define what can, or cannot, be considered a “permeable stone”

Reply: Implemented. We have corrected this part of the expression. Please see [page 9 and line 194](#).

11. Line 188. I suggest starting a new paragraph with “We have carried out…”

Reply: Implemented. We have made corrections. Please see [page 9 and line 200](#).

12. Lines 188-192. Please rewrite this sentence and avoid repeating “mesh size”

Reply: Implemented. We have rewritten these sentences. Please see [page 9 and lines 200-202](#).

13. Line 228 and 230. Eliminate “(m/d)” or use (m d-1) instead

Reply: Implemented. We have corrected it. Please see [page 11 and lines 243-245](#).

14. Lines 219-223 is repeated (see Lines 188-194)

Reply: Implemented. We have modified these two parts. Please see [page 11 and lines 234-239](#).

15. Line 232. I suggest starting a new sentence with “In fact, the transition…”

Reply: Implemented. We have corrected it. Please see [page 12 and line 247](#).

16. Line 280. Please add a comma before “and the dipolar…”

Reply: Implemented. We have added a comma. Please see [page 14 and line 296](#).

17. Line 323 (Figure 6). Please capitalize “Saturation” (Y-axis)

Reply: Implemented. We have replaced the Figure 6.

18. Line 411 (Table 2). Please capitalize “Particle size” (header)

Reply: Implemented. We have corrected it. Please see [Table 2](#).

19. Line 431 (Table 3). It is essential to repeat the “mean particle size” column also presented in Table 2?

Reply: Implemented. We have corrected it. Please see [Table 3](#).

20. Lines 438-440. Please rewrite this sentence, which is too long and confusing

Reply: Implemented. We have rewritten these sentences. Please see [page 25 and lines 456-459](#).

21. Table 4. Use (s m-1) and (s2 m-2)

Reply: Implemented. We have corrected it. Please see [Table 4](#).

22. Lines 457-459. Please check this sentence

Reply: Implemented. We have rewritten these sentences. Please see [page 25 and lines 462-464](#).

23. Line 461. RMSE is well-known. It is unnecessary to explain it or present the equation

Reply: Implemented. We have simplified this part. Please see [page 26 and lines 468-471](#).

24. Lines 473-476. Please separate into two sentences. The second sentence starts with the reference (Huang et al.)

Reply: Implemented. We have rewritten these sentences. Please see [page 26 and lines 481-483](#).

25. Line 525. Please check this figure's caption as it sounds awkward

Reply: Implemented. We have corrected the caption. Please see [page 31 and lines 540-544](#).

26. Line 503-505. Please check this sentence

Reply: Implemented. We have rewritten these sentences. Please see [page 29 and lines 514-517](#).

27. Line 569. Please avoid repeating "In addition "

Reply: Implemented. We have corrected it. Please see [page 35 and line 585](#).

28. Figures 15 and 16. These figures can be reduced without losing information

Reply: Implemented. We have combined the Figure 15 and Figure 16. Please see [Figure 15](#).

29. Line 600. "The hydraulic gradient " is enough.

Reply: Implemented. We have corrected it. Please see [page 36 and line 618](#).

30. Some units are missing in the notation list.

Reply: Implemented. We have added the relevant information. Please see [pages 36, 37 and lines 616, 617, 629](#).

Please contact me if you have further questions.

Sincerely Yours,
Hongbin Zhan, Ph.D., P.G.

