

## ***Interactive comment on “Overtopping breaching of river levees constructed with cohesive sediments” by H. Y. Wei et al.***

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General comments This article presents the experimental study of breach erosion in the cohesive levees and gives a simulation of the breaching flow with 2d numerical model. This study is very interesting and valuable to the get insights into the breach mechanism in cohesive levees and breaching flow. But what confused me is why the levee breach experiments were conducted in a bending channel flume. Has the breaching flow numerical model been validated before the applications to this study? The language should be generally improved. In General, the article can be acceptable before a major revision. Specific comments 1. In the introduction, there are no methodology and approach discussions in this study. Is it experiment in flume, numerical modelling? 2. Give a detailed explanation of the design of flume experiments. Why were they conducted in a bending channel flume? Why not do the tests in straight

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channel flume? 3. ADV has been used in the velocity measurements in the flow with sediment. Has ADV been validated or calibrated since ADV has good accuracy in flow but not in the sediment-laden flow? 4. In Line 40, please give references to “Many researchers”. 5. In Line 80, can you give a reference to the classification of “silt clay”? 6. In Line 83, can you give more detailed explanations of “other soil parameters”? or have you measured these values? 7. In Line 199, please give the reasons of choosing numerical model. In practice, the measurement should be chosen in the breaching test. 8. In line 199, you proposed to use a 2D flow model. Can you give a reference of this model? Has the model been validated to apply in the breaching flow? Does the model a non-hydrostatic module or a hydrostatic module? 9. In Line 281, eq. (12) has a different format with the traditional weir formula. Would you check eq. (12) from literatures? 10. It is better to have a discussion section before the conclusion section in Line 289 to discuss the experimental results and numerical modeling results with the past research. Technical corrections Line 47: Check the confusing sentence. Line 50: “There exist” should be “there are”. Line 55: check the strange sentence. Line 58: To many space before “To obtain” Line 129: it is not suitable to use abbreviations of “FSE” and “JIE”. And please check other abbreviations. Line 134: in “0.2m/s”, there should be a space between value and unit. Line 249: “et al.” should be deleted “;”. Check the sizes and formats of formulae in the text. They are not in the same format.

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