

Interactive comment on “Analysis of Groundwater Response to Oscillatory Pumping Test in Unconfined Aquifers: Consider the Effects of Initial Condition and Wellbore Storage” by Ching-Sheng Huang et al.

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This is a comment on the Reply to Reviewer 2 (hess-2018-199-AC2-supplement.pdf).

I am familiar with the subject and the data which the authors have misrepresented and misused in the original manuscript, as noted below. The data (in Fig. 8 of the ms and in the text of the ms) were misrepresented as being actual field data from the experiment at the BHRS. The authors admit this in their AC-2 supplement where they say they digitized data from Fig. 4(a) of Rabinovich et al. 2015. *** But the data do not

C1

look at all similar (data are too smooth and they unrealistically match ideal oscillations, and they are not at the same relative amplitude and phase positions), so the authors' statement notwithstanding, the authors presented and analyzed a very suspect digitizing operation and/or very suspect transcription to the figure without quality control as expected for scientific research - and then analyzed and interpreted the "data" with the false attribution to our OHT work at the BHRS. ***

Furthermore, as also noted by Dr. Cardiff, the authors missed the essential details that the experiment was conducted in wells subdivided by straddle packers, i.e., not conducted in open fully penetrating wells. And the actual oscillatory pumping configuration does not involve any wellbore storage. *** That is, their premise for using the data is unfounded. ***

The email I received in October 2016 was very perfunctory and did not indicate an understanding of the need to consider context and metadata in order to use field data properly. I do not feel obligated to respond to such inquiries that essentially say: "send me the data," and I do not have the time to engage in discussion to find out what the person wants or needs, and then (as may be necessary if people are unfamiliar with field experiments or field data) to guide and review to be sure the data are treated and/or used properly. I am speaking from experience on this.

So now, given the above experience with the authors, the Reply to Reviewer 2 states they want to do a reanalysis and modify their analytical model to include partially penetrating wells and thereby match the OHT field pumping configuration. But they go on to say "Curve fitting to the data will be conducted using the present solution with and without considering the wellbore storage effect."

*** But this is still an inappropriate use of the data they are requesting. It doesn't make sense to analyze data with an inappropriate model (which the authors explicitly acknowledge is their intention in their reply) in order to compare the results with modeling using data appropriate for the model. ***

C2

If the analysis is conducted correctly, it will be a foregone conclusion that the results will differ and the real data from the BHRS will look bad by comparison. This is not an appropriate use of the OHT data we collected, and there is no sound reason to put the data in the literature in a confusing context. Anyone who is competent in collecting and modeling/analyzing OHT field data would know not to use a wellbore storage model with data such as the BHRS data.

I strongly recommend that the ms by the authors not be published with BHRS OHT data. I recommend that the authors find other data that are appropriate for their analysis, or better yet, collect their own data.

Furthermore, on another issue, the authors have missed the point about small specific yield values for short duration tests that have been reported repeatedly in the literature (see citations at the end of these comments to Neuman 1975; Moench 1994; Chen and Ayers 1998; Barrash et al. 2006 - all from or cited in Barrash et al. 2006 on the BHRS aquifer - which is cited in Rabinovich et al. 2015). The authors cite general text books that give specific yield values from drainage over considerably longer periods of time than those of a short-duration pumping test - i.e., inappropriate for the subject of the paper and missing the relevant and well-documented parameter range.

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Chen, X. and Ayers, J.F., 1998, Aquifer properties determined from two analytical solutions. *Ground Water*, 36(5), 783-791.

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C3

342.

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C4