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Interactive comment on "Impact of skin effect on single-well push-pull tests with the presence of regional groundwater flow" *by* Xu Li et al.

Anonymous Referee #1

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Comment on "Impact of skin effect on single-well push-1 pull tests with the presence of regional groundwater flow" by Xu Li, Zhang Wen, Hongbin Zhan and Qi Zhu

This research developed a numerical model for single-well push-pull test used to estimate aquifer parameters. The aquifer was conceptualized as a confined formation with a fully screened well involved. The work is significant, characterizing the flow and transport in a target aquifer. Some concerns are stressed below for the authors' reference. 1) Figure 4 looks NOT an appropriate flow pattern that satisfies the boundary conditions (6) [line 158, page 8], where the streamlines should be orthogonal to the upper and lower boundaries. The boundaries that are assumed to be no flux DO NOT behave this way. Please double check the model BC is set correctly. 2) During the "rest phase" (t_inj<t<t_res), there wouldn't be the well performance, but there still exits the

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background groundwater flow which has the velocity v2>0, so the boundary condition (14) [line 193, page 10] was set inappropriately by ceasing the radial flux. It could be a good idea that setting no BC in the borehole at this phase. Some minor typos found: 1) Line 152, page 8, “r is the radial distance [L]” is repeatedly stated, previously its definition already given in line 147. 2) Line 158, notation “n“ was not explained in context, it should be the norm vector of the boundary. 3) Line 206, page 11, the surface-integral over the borehole should be expressed more specifically, showing the integral variable (dr) under the integral sign.

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