

Interactive comment on “Groundwater fluctuations in heterogeneous coastal leaky aquifer systems” by M.-H. Chuang et al.

Anonymous Referee #2

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The article presents a mathematical derivation of a simple equation to model tidal wave propagation in different subsurface geometries when leakage may take place between an aquifer and its confining unit. After deriving this equation, the authors present a number of different tests where they compare tidal wave propagation in different hydraulic settings, to help understand qualitatively how the model behaves. Essentially, they carry out a sensitivity analysis to the different parameters in their equation. Personally I like this approach, as it helps to understand the equations qualitatively. I think therefore the most important merit of this paper is this sensitivity analysis.

I missed some reflection of what the presented results would mean for real, 3d geometries and for the characterization of leakage boundaries and aquifer properties. How

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can we use tidal amplitude and phase lag to identify where leakage boundaries are located? In the charts it could be an idea to normalize distance with the decay length $\sqrt{wS/2T}$

The paper is short and to the point. The paper needs to be revised for spelling and grammatical errors.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 7, 4473, 2010.

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