

Comments on “Tidal propagation in an oceanic island with sloping beaches” by Y. C. Chang, D. S. Jeng, and H. D. Yeh

General comments

This paper developed an analytical solution of tide-induced groundwater fluctuations in oceanic islands with finite length and different slopes of the beaches. Unlike previous solutions, their solution is not only applicable for a semi-infinite coastal aquifer, but also for an oceanic island with finite length and different sloping beaches. In order to accurately predict the dynamic groundwater hydraulics, studies for groundwater fluctuations in coastal aquifers are based on Boussinesq equation with Dupuit assumption. This paper is an extension of Teo et al. (2003) and considered dual-tides in a way similar to that in Sun et al. (2008). The analytical process is technically correct. I think that their extensions of the existing work are important in the sense that they provide further insights into the tide-induced groundwater fluctuations in the oceanic island with sloping beaches. My recommendation is to accept it for publication after revisions. Finally, I would like to suggest that the formats (punctuation or dimension/units) of formula and mathematical symbols be carefully improved and checked throughout the manuscript, particularly those on pages 1410-1416. In addition, I found that there many very long sentences that frequently use “and”. It would be much beneficial to the readers if these sentences are separated into short ones.

Some special comments

Page 1408, line 25: In the sentence “For more...with a sloping beach”, the phrase “a sloping beach” appears twice. I would be better to rewrite this sentence.

Page 1409, line 4: Please change “their model” into “their models” .
Please change “certain range of the beach slope” into “a certain range of the beach slopes” .

Page 1409, line 9: Please change “to” into “with” .

Page 1410: Dimensions are needed added to the variables. e.g., $h(x,t)$ (in line 7) , A and D (in line 17) .

Page 1410, line 8: the conjunction “and” may be replaced by “, which” to make the

sentence smoother.

Page 1410-1416: Please pay attention to the punctuation, especially in the mathematical expression.

Page 1412, line 8: Since it is the first time to use “f” in the paper, some description is necessary.

Page 1413, line 13: please add “of” before α .

Page 1417, line 2: please replace “verse” with “versus”.

Page 1417, line 7: it would be better to change “Fig. 2b and c” into “Fig. 2b and 2c”.

Page 1417, line 9: it would be better to replace “comparisons of...and...” with “comparisons between...and...”.

The same change for the description of Fig. 3 on page 1429.

Page 1417, line 10: Please change “length” into “lengths” .

Page 1418, line 4: Please change “increase” into “increases”.

Page 1418, line 5: Please change “semi-infinite” into “finite” .

Page 1418, lines 9-10: Please add necessary punctuations for clarity.

Page 1419, line 4: Please change “with respective to” into “with respect to” .

Page 1422, line 19: Please change “Ki” into “Li” .