Comments from E. J. M. Veling (Referee)

Response:

We very appreciate Dr. Veling spending time in reviewing our article and providing valuable suggestions. The article as attached has been revised based on his suggestion and the corrections are listed as follows:

Correction List

Page 1408	• line 25: Change "For more realistic case of a sloping beach… with a sloping beach." into "For more realistic case of beach slopes,…with a sloping beach".
Page 1409	• line 5: Change "their model" into "their models". • line 5: Change "certain range of the beach slope" into " a certain range of the beach slopes". • line 9: Change "to" into "with".
Page 1410	• line 7: Add the dimension after h(x,t) and it should be h(x,t) [L] • line 8: Replace "and" by ", which". • line 16: Add the dimensions after A, D, and ω and it should be "A [L], D [L], ω [L]".
Page 1411	• line 2, Eq. 6: Add "and" between $n_e \frac{\partial \phi}{\partial t} = K\left[\left(\frac{\partial \phi}{\partial x}\right)^2 + \left(\frac{\partial \phi}{\partial z}\right)^2\right] - K\frac{\partial \phi}{\partial z}$ and $z = h$. • line 8, Eq. 7: Add "and" between $\lambda^* = \frac{\lambda}{L}$ and $T = \omega t$. • line 9: It should be $L = \sqrt{\frac{2KD}{n_e \omega}}$. • line 13, Eq. 9 : Add "at" between $\Phi_Z = 0$ and $Z = 0$. • line 14, Eq. 10: Add "at" between $\Phi = H$ and $Z = H$. • line 16, Eq. 11: change Φ_x into Φ_X and add " at Z = H" after this equation.
Page 1412	• line 9: Add "where f is a dependent variable such as Φ and H. Delete "and" after this sentence. • line 15, Eq. 18a: $\Phi(X,Z,T) = \sum_{n=0}^{\infty} \varepsilon^n \Phi_n(X,Z,T)$

	• line 17, Eq. 18b: $H(X,T)=\sum_{n=0}^{\infty}\varepsilon^n H_n(X,T)$
Page 1413	• line 12: Add “of” before α.
Page 1417	• Figure 5a illustrates the differences between second-order α and first-order α approximations for order ε^2 when α =0.2 and ε =0.3 and α =0.4 and ε =0.5. As one can expect, the difference increases with α and ε. Figure 5b demonstrates that the differences between second-order ε and first-order ε for order α^2 is smaller than that between and second-order ε and zero-order ε for order α^2 when both α =0.2 and ε =0.3 and α =0.4 and ε =0.5.
Page 1418	• line 4：Change “increase” into “increases”. • line 5：Change “semi-infinite” into “finite”. • lines 9-10：Revise this sentence as “Substituting Eqs. 18a and 18b into the governing Eq. 8, the boundary conditions in Eqs. 9 and 10 leads to”.
Page 1419	• line 4：Change “with respective to” into “with respect to”. • line 12: Modify this sentence as “Substituting Eq. (A6b) into (A10) leads to $C_2^*=0$ and using (A6c) results in” • line 16: Delete “in Eq. (11)” • line 17, Eq. (A13): it should be $\Phi_T=\Phi_{T_1}+\Phi_{X_1}\alpha\varepsilon\cot\beta_1\sin T_1$
Page 1420	• line 2, Eq. (A14): it should be $2(\Phi_{T_1}+\Phi_{X_1}\alpha\varepsilon\cot\beta_1\sin T_1)=\Phi_{X_1}^2+\frac{1}{\varepsilon^2}\Phi_Z^2-\frac{1}{\varepsilon^2}\Phi_Z$ • line 5, Eq. (A15): it should be $2\left[H_{0T_1}+\varepsilon(H_{1T_1}+\alpha\cot\beta_1\sin T_1 H_{0X_1})+\varepsilon^2(H_{2T_1}+\alpha\cot\beta_1\sin T_1 H_{1X_1})+\ldots\right]$ $=\left[H_{0X_1}^2+2\varepsilon H_{0X_1}H_{1X_1}+\varepsilon^2\left[H_{1X_1}^2+2H_{0X_1}(H_{2X_1}+H_0 H_{0X_1}H_{0X_1X_1})\right]+\ldots\right]$ $+\frac{1}{\varepsilon^2}(\varepsilon^4 H_{0X_1X_1}^2 H_0+\ldots)$ $+\frac{1}{\varepsilon^2}\left[\varepsilon^2 H_0 H_{0X_1X_1}+\varepsilon^3(H_1 H_{0X_1X_1}+H_0 H_{1X_1X_1})+\varepsilon^4(H_2 H_{0X_1X_1}+H_1 H_{1X_1X_1}+H_0 H_{2X_1X_1}\right.$ $\left.+2H_0^2 H_{0X_1}H_{0X_1X_1X_1}+\frac{1}{3}H_0^3 H_{0X_1X_1X_1X_1})+\ldots\right]$ • line 14: add the reference “(Bruggeman, 1999)” after this sentence “The general solution…” • line 15, Eq. (B1): it should be $H_{01}=\mathrm{Im}[\Lambda_1\exp((1+i)X_1)\exp(iT_1)+\Lambda_1\exp(-(1+i)X_1)\exp(iT_1)]$

Page 1421	• line 17, Eq (B8): it should be $a_1 = \frac{\cos X_R + \exp(-X_R)}{2(\cosh X_R + \cos X_R)}$ • line 19, Eq. (B9): it should be $a_2 = \frac{\sin X_R}{2(\cosh X_R + \cos X_R)}$
Page 1422	• line 3: it should be “Dagan, G.” • line 19：Change “Ki” into “Li”. • Add the reference “Bruggeman, G. A.: Analytical solution of geohydrological problems, Elsevier Science Ltd, 1999.”
Table 1	Some equations are modified to be more concise. • $a_1 = \frac{\cos X_R + \exp(-X_R)}{2(\cosh X_R + \cos X_R)}$ • $a_2 = \frac{\sin X_R}{2(\cosh X_R + \cos X_R)}$ • Δ_1 $= \frac{1}{2}(\delta_{15} + \delta_{17})\sin 2\sqrt{2}X_R$ $+ \frac{1}{2}(\delta_{16} + \delta_{18})(e^{-2\sqrt{2}X_R} - \cosh 2\sqrt{2}X_R)$ $+ \sinh\sqrt{2}X_R \cos\sqrt{2}X_R\left[-(\delta_{15}e^{-2X_R} - \delta_{17}e^{2X_R})\sin 2X_R + (\delta_{16}e^{-2X_R} + \delta_{18}e^{2X_R})\cos 2X_R\right]$ $- \cosh\sqrt{2}X_R \sin\sqrt{2}X_R\left[(\delta_{15}e^{-2X_R} + \delta_{17}e^{2X_R})\cos 2X_R + (\delta_{16}e^{-2X_R} - \delta_{18}e^{2X_R})\sin 2X_R\right]$ • Δ_2 $= -\frac{1}{2}(\delta_{16} + \delta_{18})\sin 2\sqrt{2}X_R$ $+ \frac{1}{2}(\delta_{15} + \delta_{17})(e^{-2\sqrt{2}X_R} - \cosh 2\sqrt{2}X_R)$ $+ \sinh\sqrt{2}X_R \cos\sqrt{2}X_R\left[(\delta_{15}e^{-2X_R} + \delta_{17}e^{2X_R})\cos 2X_R + (\delta_{16}e^{-2X_R} - \delta_{18}e^{2X_R})\sin 2X_R\right]$ $+ \cosh\sqrt{2}X_R \sin\sqrt{2}X_R\left[-(\delta_{15}e^{-2X_R} - \delta_{17}e^{2X_R})\sin 2X_R + (\delta_{16}e^{-2X_R} + \delta_{18}e^{2X_R})\cos 2X_R\right]$ • Δ_3 $= -\frac{1}{2}(\delta_{22} + \delta_{24})\sin 2\sqrt{2}X_R$ $- \frac{1}{2}(\delta_{21} + \delta_{23})(e^{-2\sqrt{2}X_R} - \cosh 2\sqrt{2}X_R)$ $+ \sinh\sqrt{2}X_R \cos\sqrt{2}X_R\left[(\delta_{22}e^{-2X_R} - \delta_{24}e^{2X_R})\sin X_R - (\delta_{21}e^{-2X_R} + \delta_{23}e^{2X_R})\cos X_R\right]$ $+ \cosh\sqrt{2}X_R \sin\sqrt{2}X_R\left[(\delta_{22}e^{-2X_R} + \delta_{24}e^{2X_R})\cos X_R + (\delta_{21}e^{-2X_R} - \delta_{23}e^{2X_R})\sin X_R\right]$ • Δ_4 $= \frac{1}{2}(\delta_{21} + \delta_{23})\sin 2\sqrt{2}X_R$ $- \frac{1}{2}(\delta_{22} + \delta_{24})(e^{-2\sqrt{2}X_R} - \cosh 2\sqrt{2}X_R)$ $- \sinh\sqrt{2}X_R \cos\sqrt{2}X_R\left[(\delta_{22}e^{-2X_R} + \delta_{24}e^{2X_R})\cos X_R + (\delta_{21}e^{-2X_R} - \delta_{23}e^{2X_R})\sin X_R\right]$ $+ \cosh\sqrt{2}X_R \sin\sqrt{2}X_R\left[(\delta_{22}e^{-2X_R} - \delta_{24}e^{2X_R})\sin X_R - (\delta_{21}e^{-2X_R} + \delta_{23}e^{2X_R})\cos X_R\right]$
Figure 1	• The parameter “A” is added in Figure 1.

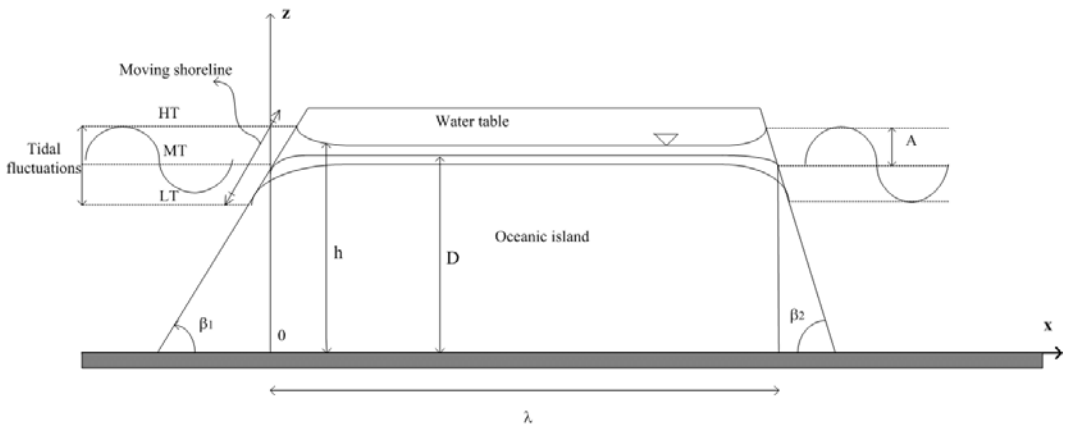

Figure 1. The profile of tidal water table fluctuations in an oceanic island with sloping beaches.

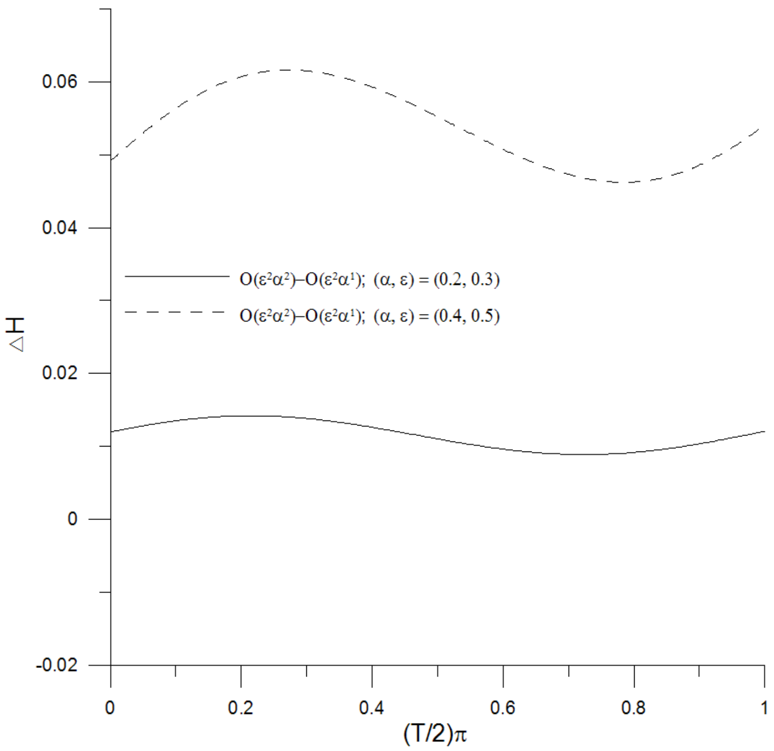

Fig.5a. Differences between second-order α and first-order α approximations for order ε^2 when (α, ε) = (0.2, 0.3) and (α, ε) = (0.4, 0.5).

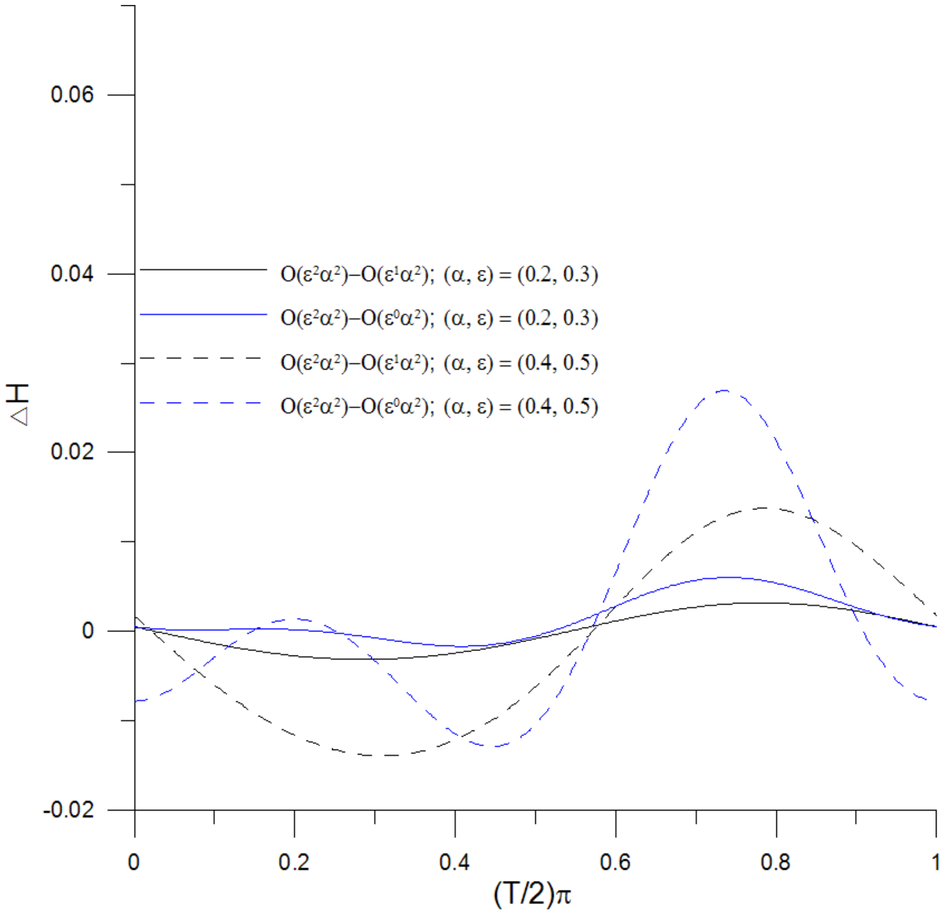

Fig.5b. Differences between second-order ε, first-order ε and zero-order ε approximations for order α^2 when (α, ε) = (0.2, 0.3) and (α, ε) = (0.4, 0.5).

Fig. 5b. Difference between second-order ε, first-order ε 0and zero-order ε for order α^2 when (α, ε) = (0.2, 0.3) and (α, ε) = (0.4, 0.5).