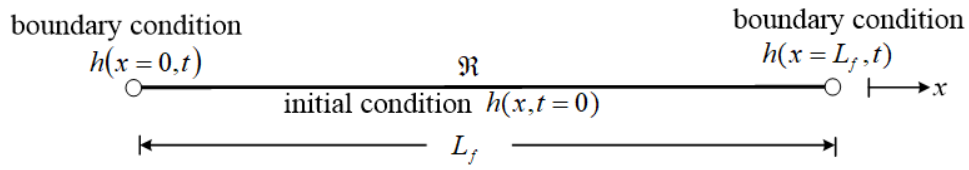


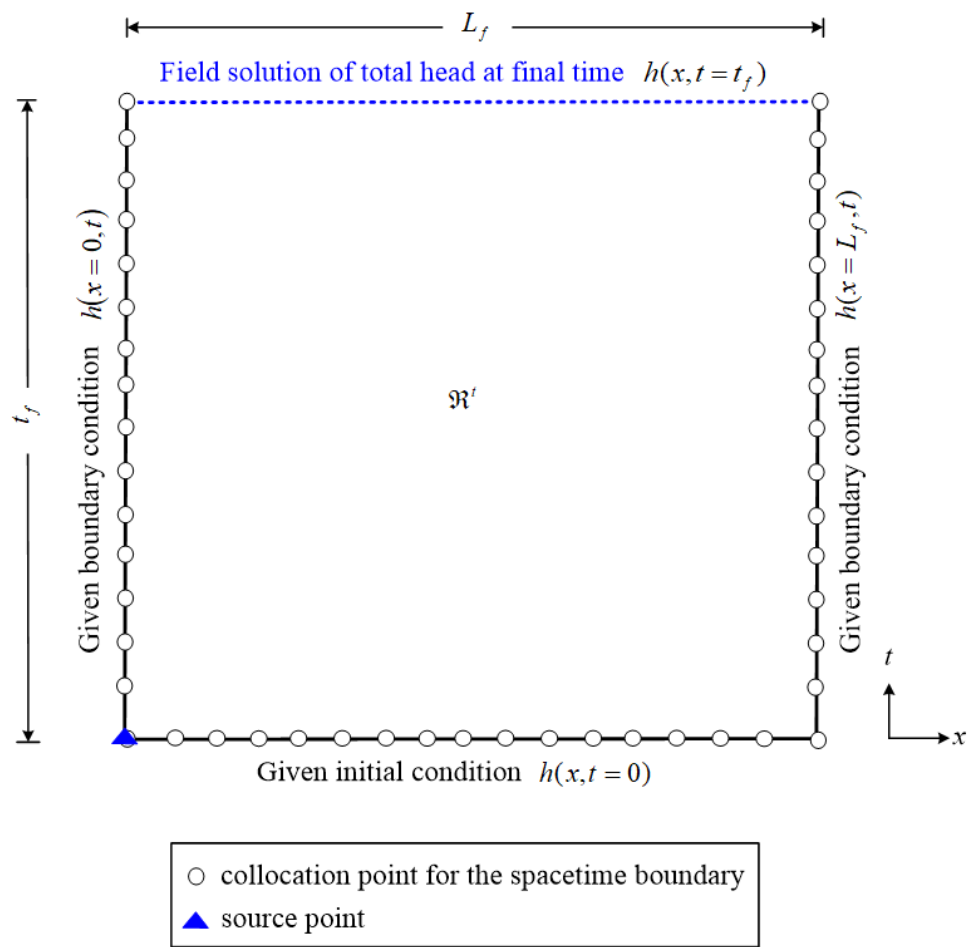
FIGURE 1 The schematic diagram of this study

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(a)



(b)

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8 **FIGURE 2** Conventional one-dimensional domain and the spacetime domain: (a) conventional
9 one-dimensional transient problem, and (b) boundary points of the problem in the spacetime
10 domain

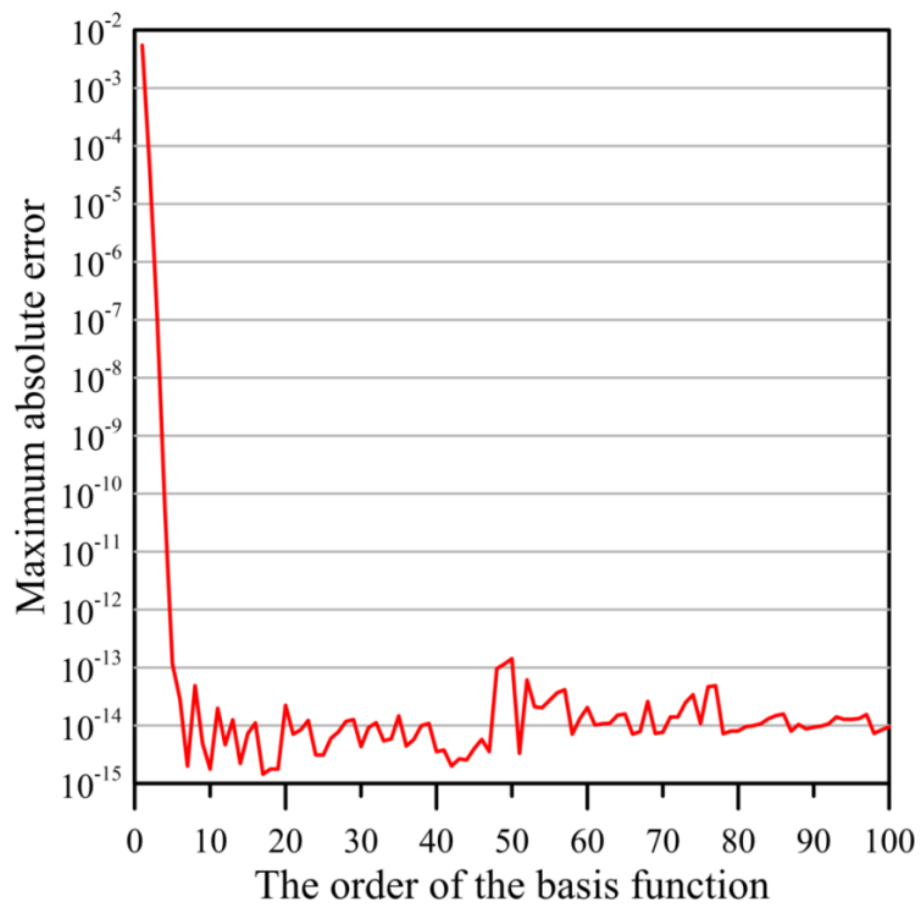


FIGURE 3 The order of the basis function versus the MAE

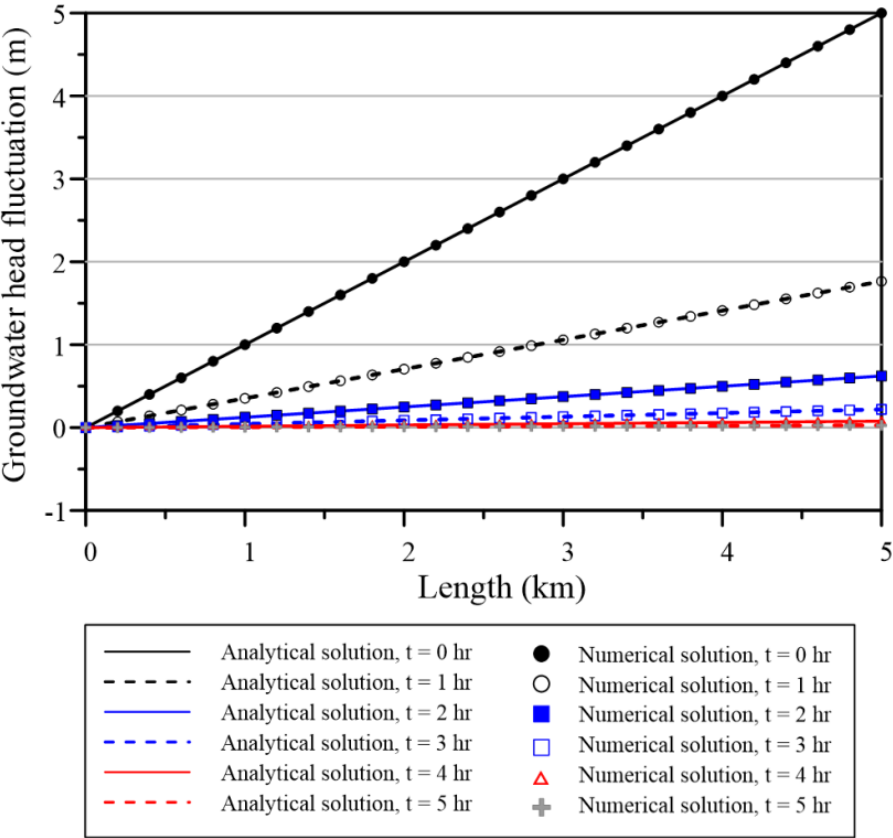


FIGURE 4 Result comparison of Example 1

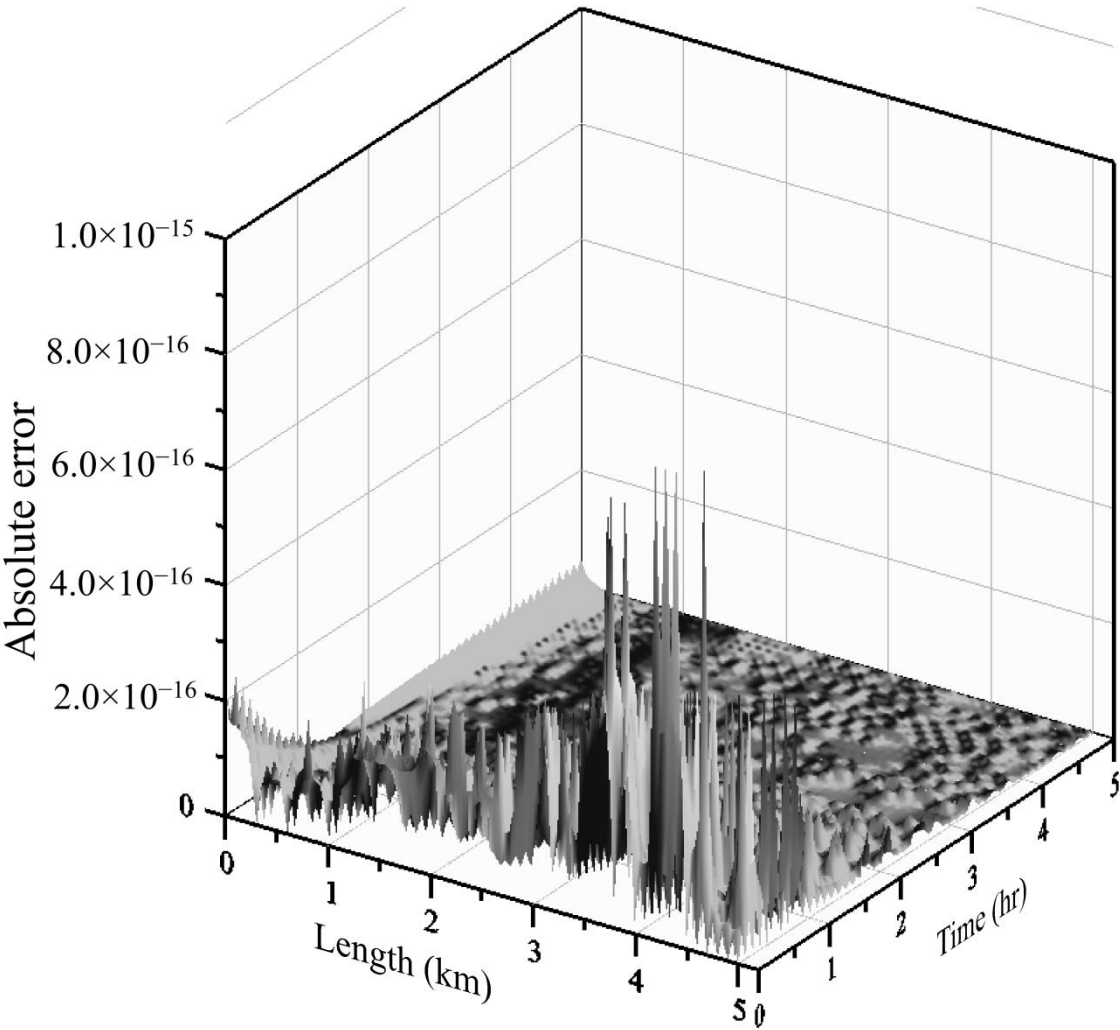


FIGURE 5 Absolute error of the results computed with the analytical solution at final time

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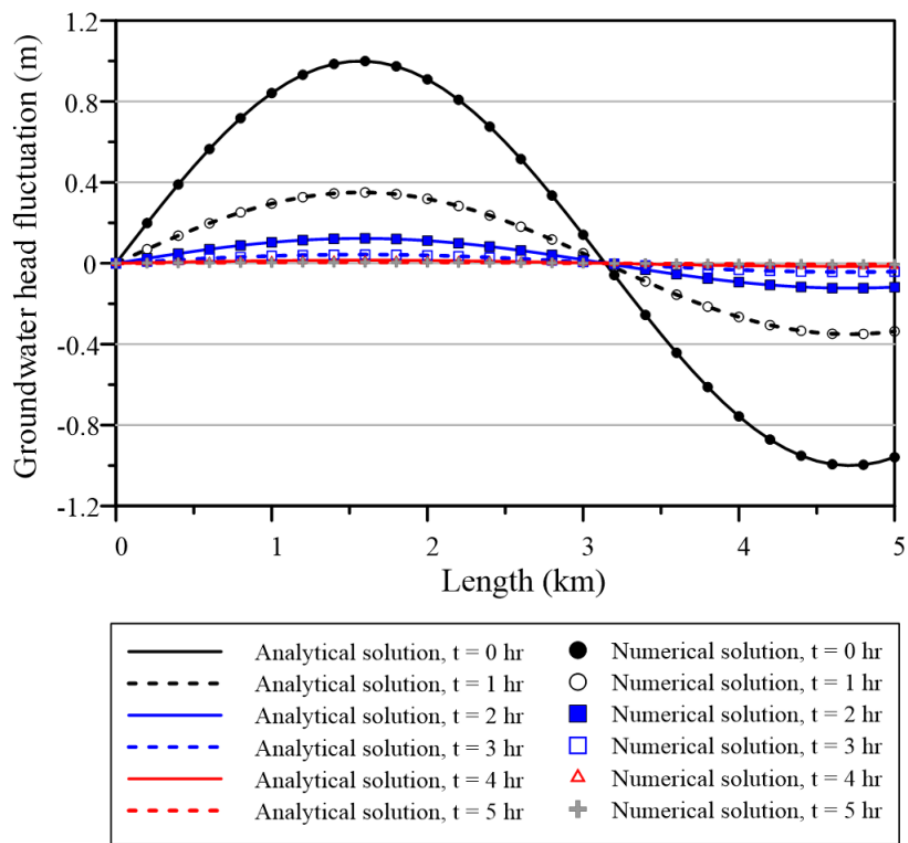


FIGURE 6 Result comparison of Example 2

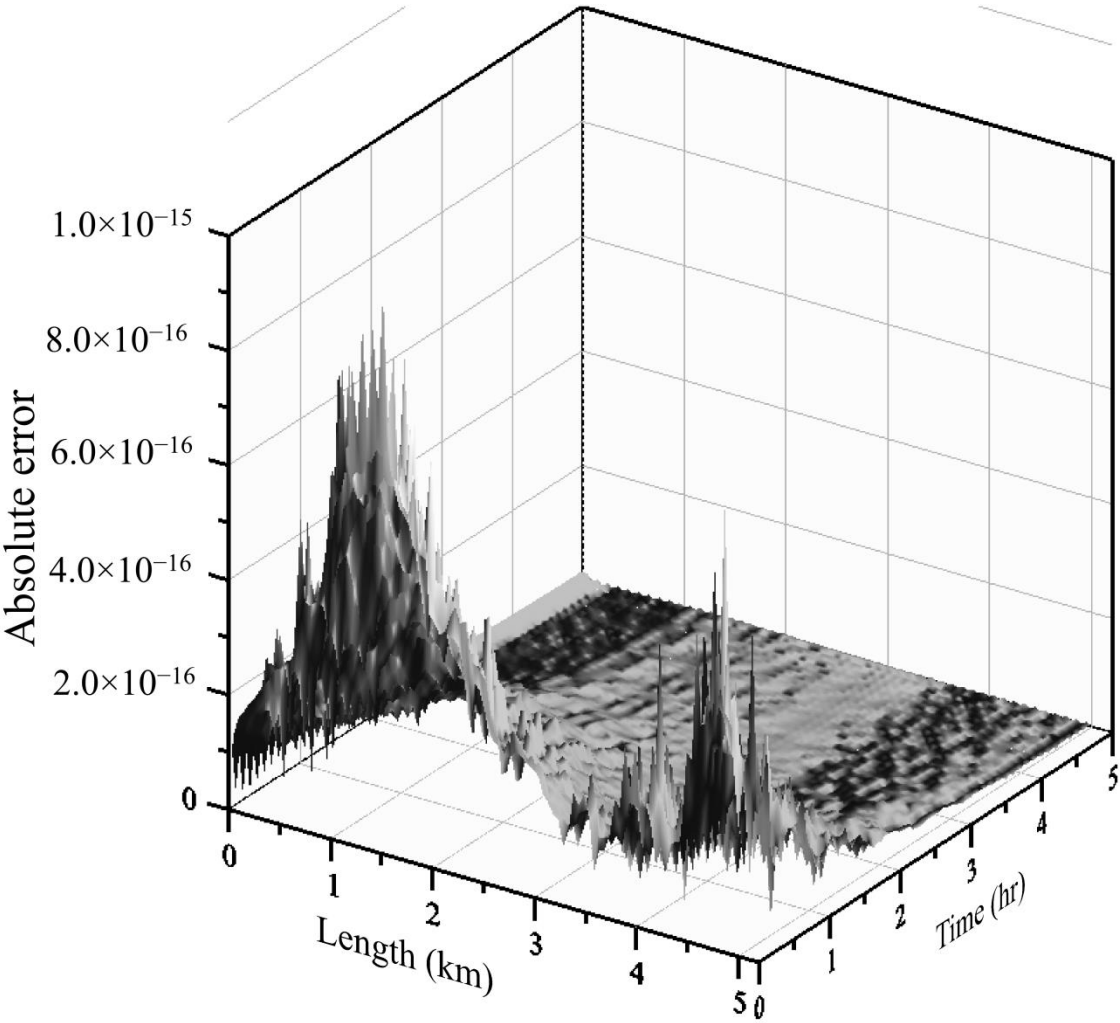


FIGURE 7 Absolute error of the results computed with the analytical solution at final time

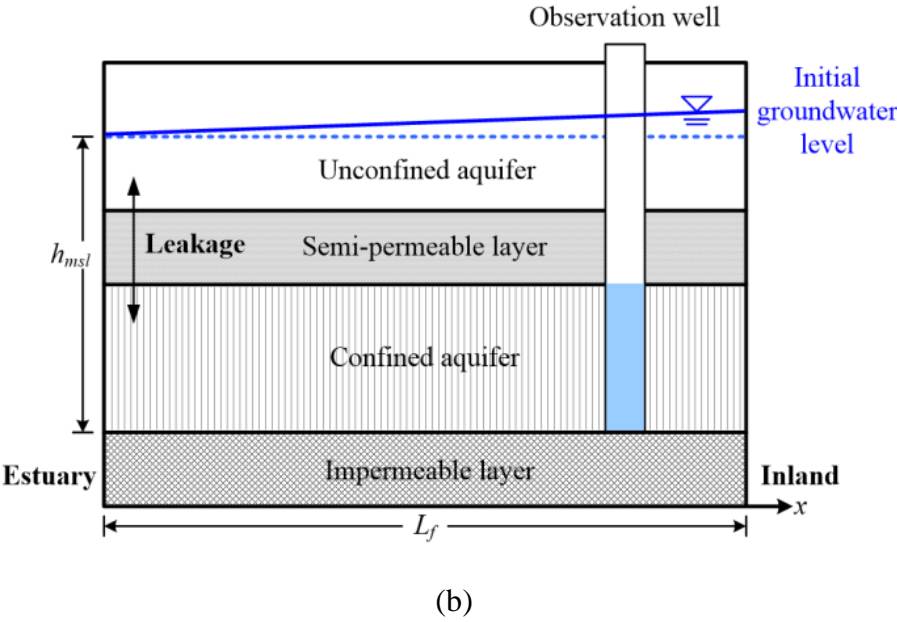
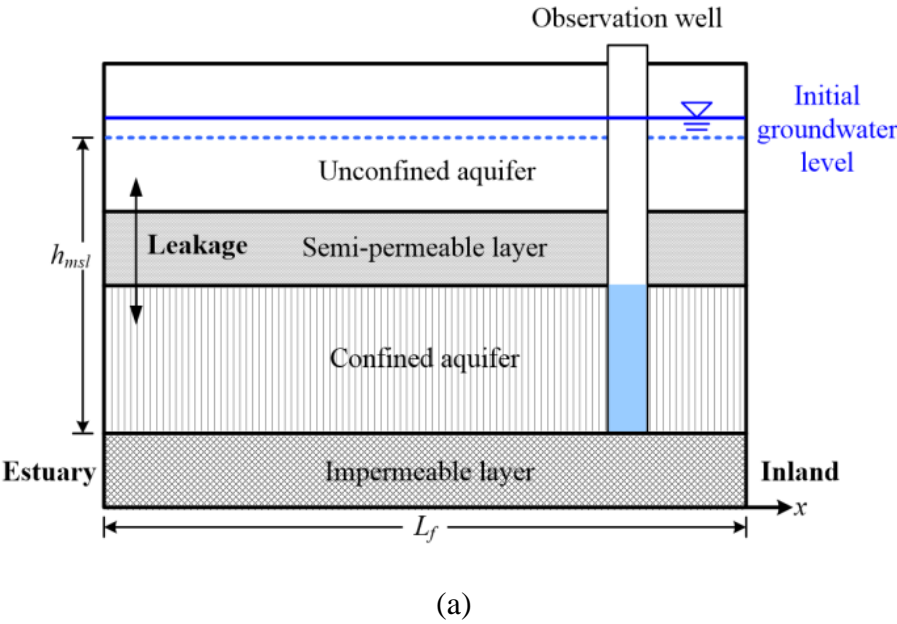


FIGURE 8 Schematic of finite coastal confined aquifer: (a) Case A: constant initial hydraulic head, and (b) Case B: inclined initial hydraulic head

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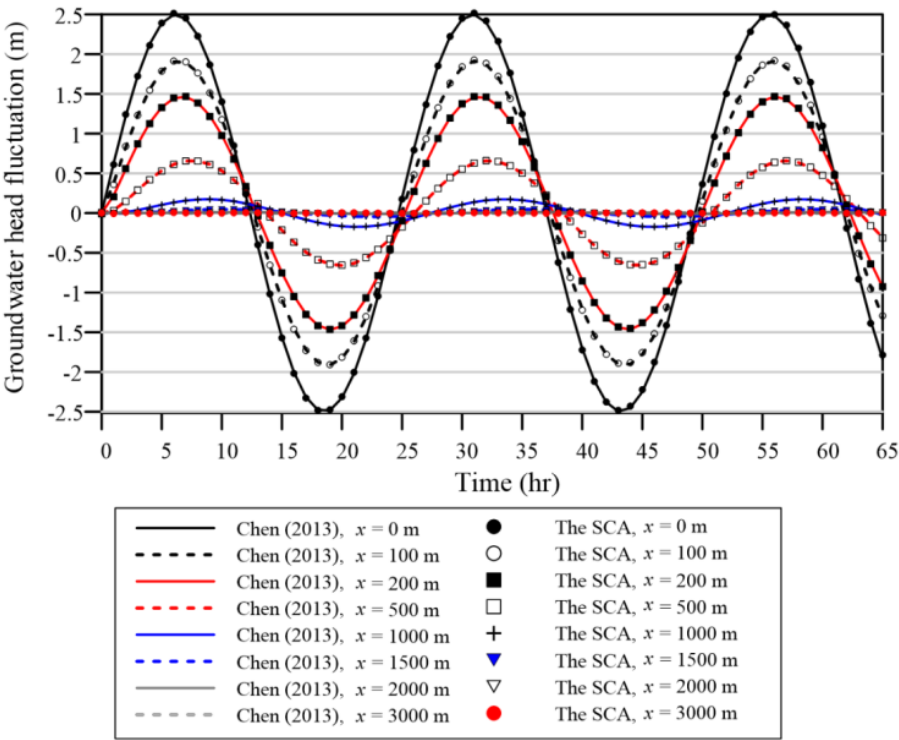


FIGURE 9 Result comparison of Example 3 (Case A)

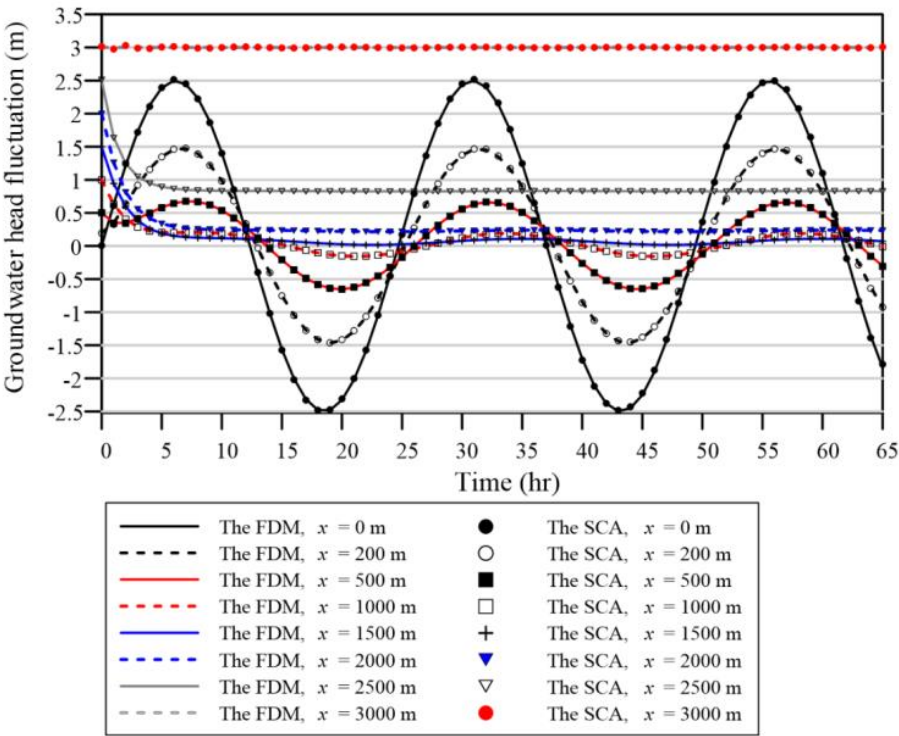


FIGURE 10 Result comparison of Example 3 (Case B)

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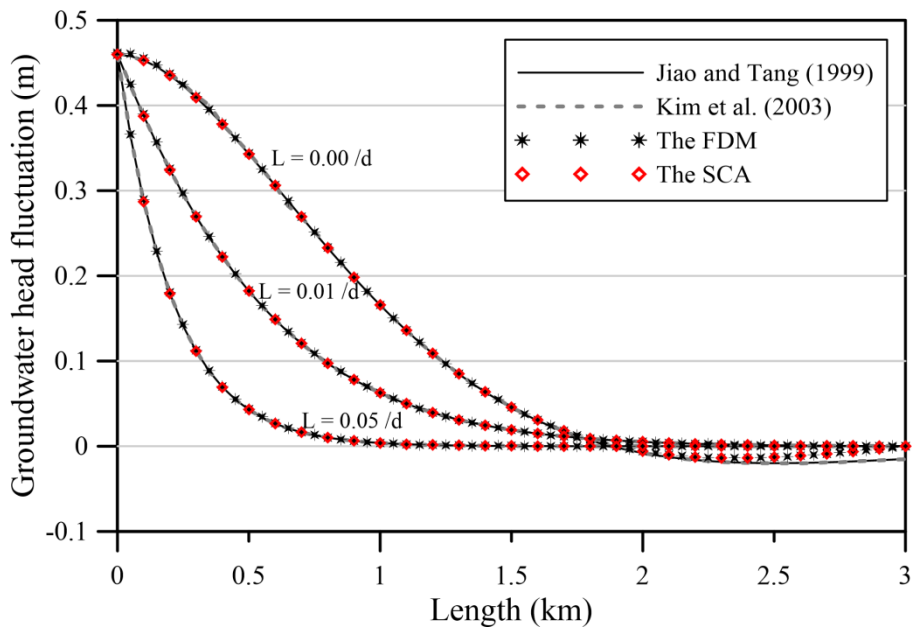


FIGURE 11 Comparison of the results computed with previous studies ($t_f = 3$ hr)

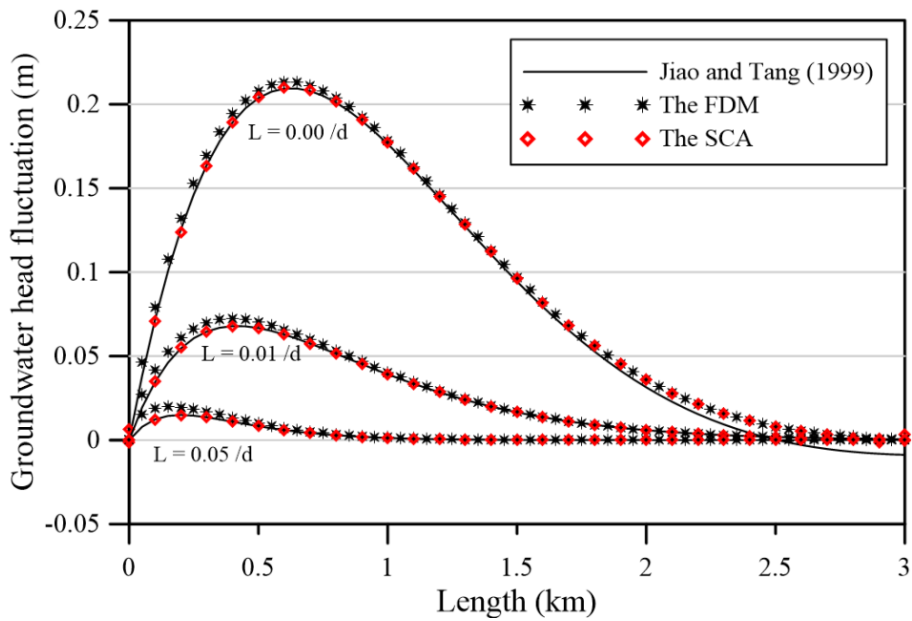
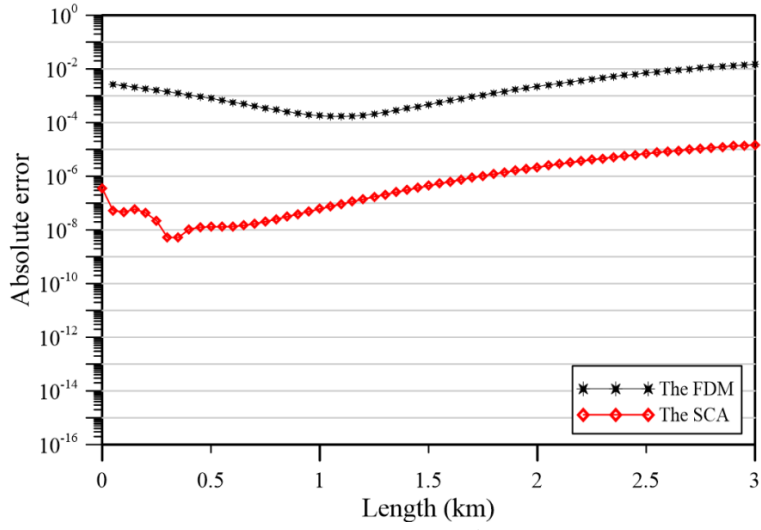
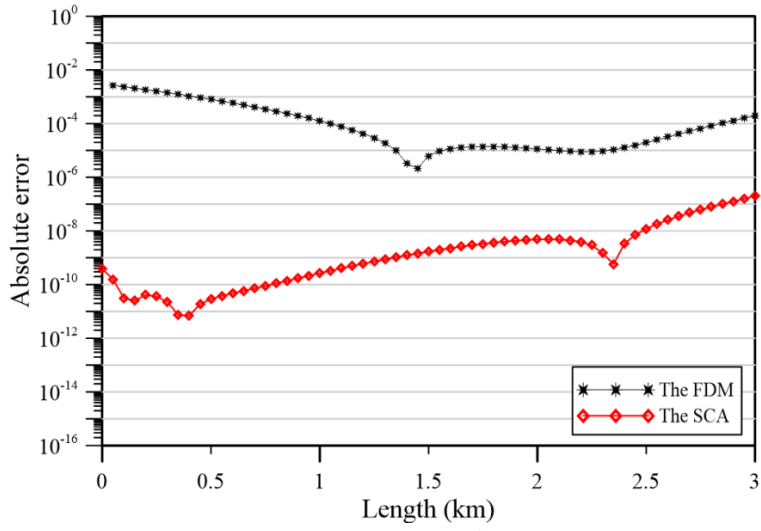


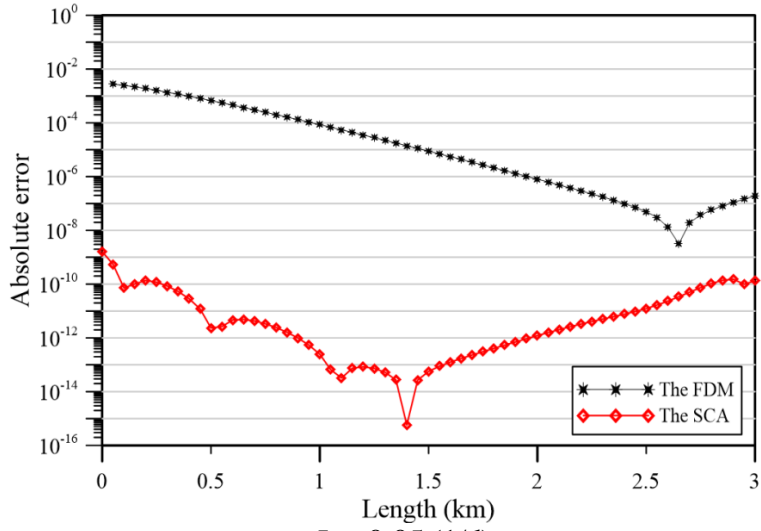
FIGURE 12 Comparison of the results computed with previous studies ($t_f = 6$ hr)



(a) $L = 0.00$ (1/d)



(b) $L = 0.01$ (1/d)



(c) $L = 0.05$ (1/d)

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FIGURE 13 Comparison of the accuracy with the FDM and the proposed method at $t_f = 3$ hr : (a) $L = 0.00$ (1/d) , (b) $L = 0.01$ (1/d) , and (c) $L = 0.05$ (1/d)

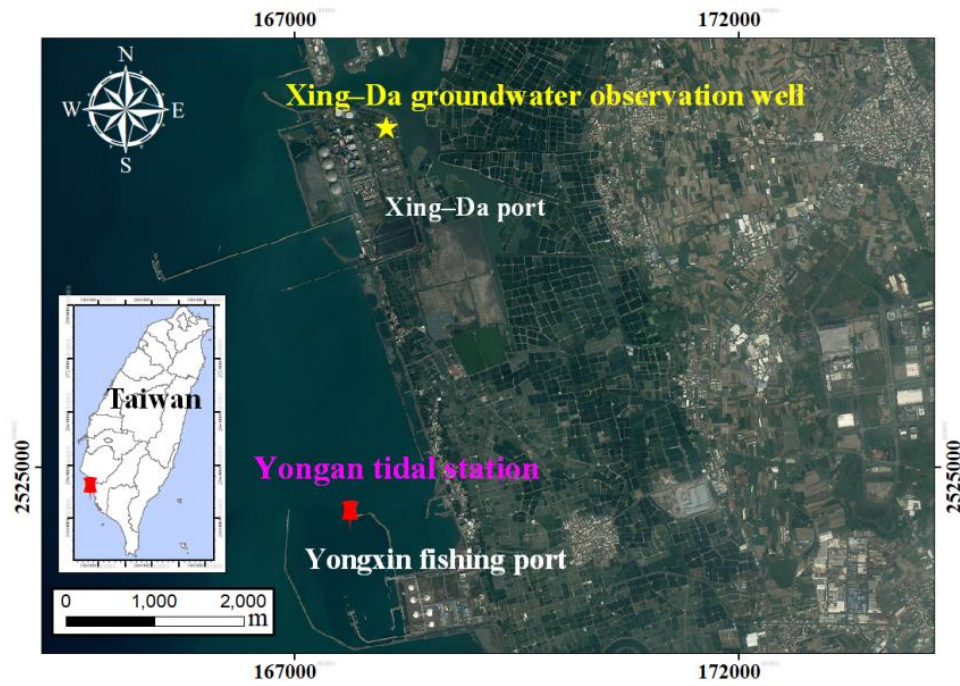


FIGURE 14 The location of Xing-Da port in southwestern Taiwan

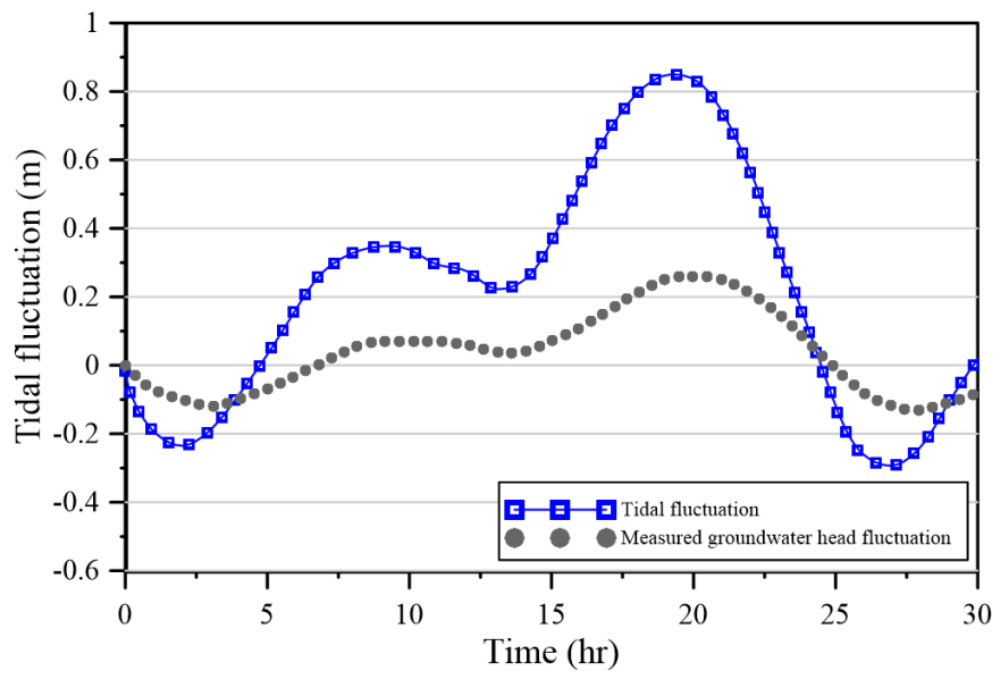


FIGURE 15 The tidal fluctuation and the measured groundwater response

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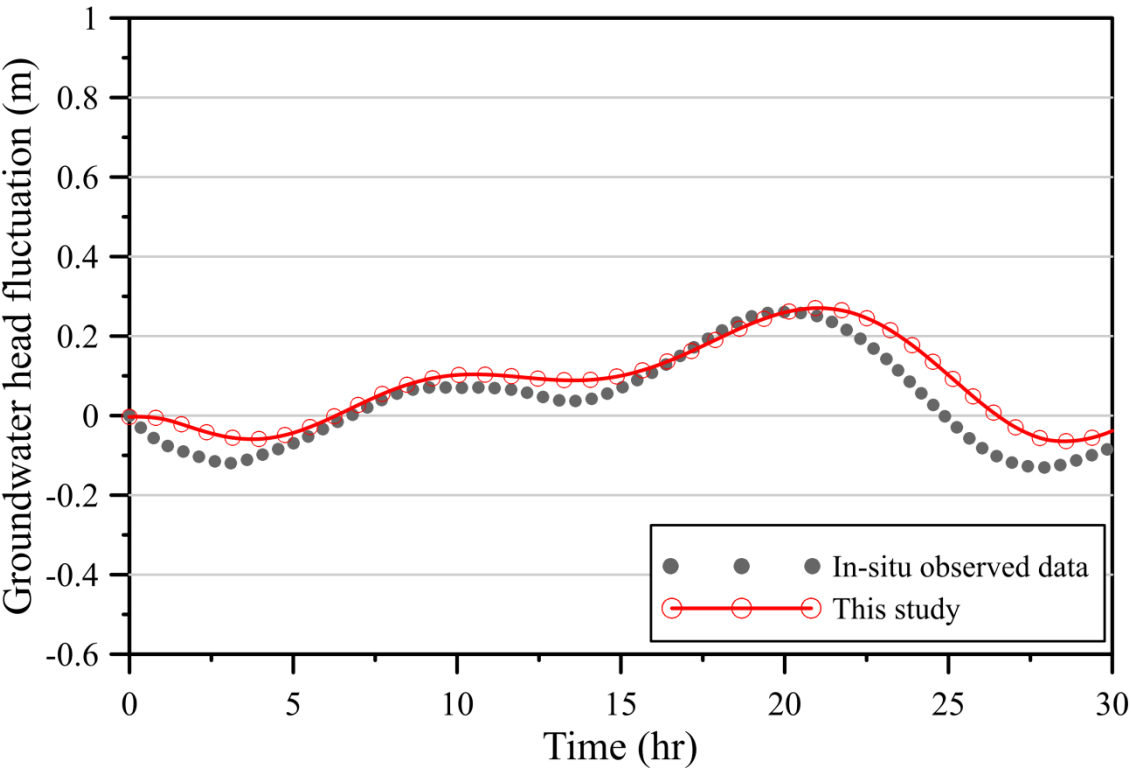


FIGURE 16 Comparison of the computed groundwater response with measured data