第21回LaMer特別講演会

EHIME UNIVERSITY

The nonlinear effects of the eddy viscosity and the bottom friction on the Lagrangian residual velocity in a narrow model bay

2018.9.4 (Tue)

時間：10：00～
場所：総合研究棟Ⅰ 4階会議室

入場無料
ADMISSION FREE

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The nonlinear effects of the eddy viscosity and the bottom friction on the Lagrangian residual velocity (LRV) are studied numerically in a narrow model bay. Three groups of the experiments with different eddy viscosity and different forms of the bottom friction are designed and are carried out in the three kinds of the topography. When the eddy viscosity is obtained from a two-equation turbulence closure model, the pattern of the LRV is more complex than that of the time invariant eddy viscosity case and the intensity is from more than 1.3 times to one order smaller than that of the linear eddy viscosity condition. The LRV are also acquired when the eddy viscosity varies from the flood-averaged one to the ebb-averaged one. It is found that when the flood-averaged eddy viscosity is bigger than the ebb- averaged eddy viscosity (flood-dominated asymmetry), the direction of the breadth-averaged LRV and the 3D LRV is nearly opposite to that when the eddy viscosity asymmetry is reverse (ebb-dominated asymmetry). However, the intensity of the LRV for the ebb-dominated case decreases toward the flood- dominated case as the ratio of the maximum depth in the deep channel and the minimum depth on the shoal increases. The different forms of the bottom friction also play a role in the LRV. The structures of the 3D LRV and the depth-integrated LRV are simpler, and the intensity of the LRV is two times smaller when the linear bottom friction is used than those when the quadratic bottom friction is used.

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