

Journal Publications

Papers submitted or in revision:

1. Lu, Y., Shi, F., Kirby, J. T., and Feng, W., 2017, "A two-layer model for oblique internal hydraulic jumps generated by a sharp lateral constriction", Submitted to Journal of Fluid Mechanics, in revision.
2. Orzech, M.D., Shi, F., Bateman, S., Veeramony, J., Calantoni, J., and Kirby, T.J., A coupled system for investigating the physics of wave-ice interactions, submitted to Journal of Atmospheric and Oceanic Technology.
3. Wargula, A., Raubenheimer, B., Elgar, S., Chen, J.-L., Shi, F., and Traykovski, P., 2017, "Flow asymmetry owing to inertia and waves on an unstratified, shallow ebb shoal", submitted to Journal of Geophysical Research: Oceans.

Papers in Journals:

1. Shi, F., Malej, M., Smith, J. M., and Kirby, J. T., 2017, "Breaking of ship bores in a Boussinesq-type ship-wake model", Coastal Engineering, in press.
2. Kukulka, T., Jenkins, R. L., Kirby, J. T., Shi, F. and Scarborough, R. W., 2017, "Surface wave dynamics in Delaware Bay and its adjacent coastal shelf", Journal of Geophysical Research: Oceans, in press.
3. Lynett P., et al., 2017, "Inter-Model Analysis of Tsunami-Induced Coastal Currents", Ocean Modelling ,DOI: 10.1016/j.ocemod.2017.04.003.
4. Chakrabarti, A., Brandt, S. R., Chen, Q., and Shi, F., 2017, "Boussinesq modeling of wave induced hydrodynamics in coastal wetlands during Hurricane Isaac", Journal of Geophysical Research: Oceans, DOI: 10.1002/2016JC012093.
5. Zhou, Z., Yu, X., Hsu, T.-J., Shi, F., Geyer, W. R. and Kirby, J. T., 2017, "Large eddy simulation of idealized river plumes at high Reynolds number", Journal of Geophysical Research: Oceans , DOI: 10.1002/2016JC012334.
6. Wu, G., Li, H., Liang, B., Shi, F., Kirby, J. T., and Mieras, R., 2017, "Subgrid Modeling of Salt Marsh Hydrodynamics with Effects of Vegetation and Vegetation Zonation", Earth Surface Processes and Landforms, DOI:10.1002/esp.4121.
7. Shi, F., Chickadel, C., Hsu, T.-J., Kirby, J. T., Farquharson, G. and Ma, G., 2017, "Frontal features of the Columbia River mouth seen from a high-resolution non-hydrostatic model", Estuaries and Coasts, 40, 296-309, DOI 10.1007/s12237-016-0132-y
8. Grilli, S. T., Shelby, M., Kimmoun, O., Dupont, G., Nicolsky, D., Ma, G., Kirby, J. T. and Shi, F., 2017, "Modeling coastal tsunami hazard from submarine mass failures: effect of slide rheology, experimental validation, and case studies off the US East Coast", Natural Hazards, doi:10.1007/s11069-016-2692-3.
9. Kirby, J. T., Shi, F., Nicolsky, D. and Misra, S., 2016, "The 27 April 1975 Kitimat, British Columbia submarine landslide tsunami: A comparison of modeling approaches", Landslides, 13, 1421-1434, doi:10.1007/s10346-016-0682-x.
10. Schnyder, J. S. D., Eberli, G. P., Kirby, J. T., Shi, F., Tehranirad, B., Mulder, T., Ducassou, E., H ebbeln, D. and Wintersteller, P., 2016, "Tsunamis caused by submarine slope failures along western Great Bahama Bank", Scientific Reports (Nature) , 6, 35925, doi:10.1038/srep35925.
11. Derakhti, M., Kirby, J. T., Shi, F. and Ma, G., 2016, "NHWAVE: Consistent boundary conditions and turbulence modeling", Ocean Modelling, 106, 121-130, doi: 10.1016/j.ocemod.2016.09.002
12. Derakhti, M., Kirby, J. T., Shi, F. and Ma, G., 2016, "Wave breaking in the surf zone and deep water in a non-hydrostatic RANS model, Part 1: Organized wave motions", Ocean Modeling, 107, 125-138, doi: 10.1016/j.ocemod.2016.09.001
13. Derakhti, M., Kirby, J. T., Shi, F. and Ma, G., 2016, "Wave breaking in the surf zone and deep water in a non-hydrostatic RANS model, Part 2: Turbulence and mean circulation", Ocean Modeling, doi: 10.1016/j.ocemod.2016.09.011
14. Ma, G., Farahani, A. A., Kirby, J. T., Shi, F., 2016, Modeling wave-structure interactions by an immersed boundary method in a sigma-coordinate model, Ocean Engineering, 125, 238-247.
15. Son, S. Jung, T.-H., and Shi, F., 2016, "Vertical structure of rip-currents in the nearshore Circulation", Journal of Coastal Research , Special issue, 72, 1402-1406.
16. Orzech, M., Shi, F., Veeramony, J., Bateman, S., Calantoni, J. and Kirby, J. T., 2016, "Incorporating floating surface objects into a fully dispersive surface wave model", Ocean Modelling, 102, 14-26.
17. Wu, G., Shi, F., Kirby, J. T., Mieras, R., Liang, B., Li, H. and Shi, J., 2016, "A pre-storage, subgrid model for simulating flooding and draining processes in salt marshes", 49 Coastal Engineering, 108, 65-78.
18. Shi, J., Shi, F., Kirby, J. T. Gu, G. and Ma, G., 2015, "Pressure decimation and interpolation (PDI) method for a baroclinic non-hydrostatic model", Ocean Modelling, 96, 265-279.
19. Ma, G., Kirby, J. T., Hsu, T.-J. and Shi, F., 2015, "A two-layer granular landslide model for tsunami wave generation: Theory and computation", Ocean Modelling, 93, 40-55.

20. Tehranirad, B., Harris, J. C., Grilli, A. R., Grilli, S. T., Abadie, S., Kirby, J. T. and Shi, F., 2015, "Far-field tsunami hazard on the western European and US east coast from a large scale flank collapse of the Cumbre Vieja volcano, La Palma", *Pure and Applied Geophysics*, DOI 10.1007/s00024-015-1135-5
21. Chen, J., Hsu, T., Shi, F., Raubenheimer, B., and Elgar, S., 2015, "Hydrodynamic and sediment transport modeling of New River Inlet (NC) under the interaction of tides and waves", *J. Geophys. Res.*, DOI: 10.1002/2014JC010425
22. Goncharenko, Y.V., Farquharson, G., Shi, F., Raubenheimer, B., Elgar, S., 2015, "Estimation of Shallow-water Breaking Wave Height from Synthetic Aperture Radar", *Geoscience and Remote Sensing Letters*, DOI: 10.1109/LGRS.2015.2445492
23. Shi, F., Vittori, G. and Kirby, J. T., 2015, "Concurrent correction method for modeling morphological response to dredging an offshore sandpit", *Coastal Engineering*, 97, 1-10.
24. Keshtpoor, M., Puleo, J. A., Shi, F. and Ma, G., 2015, "3D Numerical Simulation of Turbulence and Sediment Transport within a Tidal Inlet", *Coastal Engineering*, 96, 13-26.
25. Grilli, S. T., O'Reilly, C., Harris, J. C., Tajalli Bakhsh, T., Tehra nirad, B., Banihashemi, S., Kirby, J. T., Baxter, C. D. P., Egging, T., Ma, G. and Shi, F., 2015 "Modeling of SMF tsunami hazard along the upper U. S. East Coast: Detailed impact around Ocean City, MD", *Nat. Hazards*, DOI 10.1007/s11069-014-1522-8.
26. Tappin, D. R., Grilli, S. T., Harris, J. C., Geller, R. J., Masterlark, T., Kirby, J. T., Shi, F., Ma, G., Thingbaijam, K. K. S. and Mai, P. M., 2014, "Did a submarine landslide contribute to the 2011 Tohoku tsunami?", *Marine Geology*, DOI: 10.1016/j.margeo.2014.09.043.
27. Chen, J., Shi, F., Hsu, T.-J., and Kirby, J. T., 2014, "NearCoM-TVD - a quasi-3D nearshore circulation and sediment transport model", *Coastal Engineering*, 91, 200-212.
28. Keshtpoor, M., Puleo, J. A., Shi, F. and DiCosmo, N., 2014, "Numerical simulation of nearshore hydrodynamics and sediment transport downdrift of a tidal inlet", *Journal of Waterway, Port, Coastal and Ocean Engineering*, 10.1061/JWW.1943-5460.0000273.
29. Ma, G., Shi, F., Hsiao, S.-C., and Wu Y.-T., 2014, "Non-dydrostatic modeling of wave interaction with porous structures", *Coastal Engineering*, 91, 84-98
30. Hansen, J. E., Janssen, T. T., Raubenheimer, B., Shi, F., Barnard, P., and Jones, I. S., 2014, "Observations of surfzone along-shore pressure gradients at an energetic ocean beach", *Coastal Engineering*, 91, pp. 251-260.
31. Ma, G., Chou, Y.-J. and Shi, F., 2014, "A wave-resolving model for nearshore suspended sediment transport", *Ocean Modelling*, 77, 2014, 33-49.
32. Keshtpoor, M., Puleo, J. A., Shi, F., 2014, "Downdrift beach erosion adjacent to the Indian River Inlet, Delaware, USA", *Shore & Beach*, Vol. 82, No. 1-11.
33. Ma, G., Shi, F., Liu, S. and Qi, D., 2013, "Migration of sediment deposition due to the construction of large-scale structures in Changjiang Estuary", *Applied Ocean Research*, 43, 148-156.
34. Ma, G., Kirby, J. T. and Shi, F., 2013, "Numerical simulation of tsunami waves generated by deformable submarine landslides", *Ocean Modelling*, 69, 146-165.
35. Ma, G., Kirby, J. T., Su, S. F., Figlus, J. and Shi, F., 2013, "Numerical study of turbulence and wave damping induced by vegetation canopies", *Coastal Engineering*, 80, 68-78.
36. Shi, F., Cai, F., Kirby, J. T. and Zheng, J., 2013, "Morphological modeling of a nourished bayside beach with a low tide terrace", *Coastal Engineering*, 78, 23-34.
37. Sawyer, A. H., Shi, F., Kirby, J. T. and Michael, H. A., 2013, "Dynamic response of surface water-groundwater exchange to currents, tides and waves in a shallow estuary", *J. Geophys. Res.*, 118, doi:10.1002/jgrc.20154.
38. Kirby, J. T., Shi, F., Harris, J. C., and Grilli, S. T., 2013, "Sensitivity analysis of trans-oceanic tsunami propagation to dispersive and Coriolis effects", *Ocean Modeling*, 62, 39-55.
39. Grilli, S. T., Harris, J. C., Tajalibakhsh, T., Masterlark, T. L., Kyriakopoulos, C., Kirby, J. T. and Shi, F., 2012, "Numerical simulation of the 2011 Tohoku tsunami based on a new transient FEM co-seismic source", *Pure and Applied Geophysics*, doi:10.1007/s00024-012-0528-y
40. Shi, F., Kirby, J. T., Harris, J. C., Geiman, J. D. and Grilli, S. T., 2012, "A high-order adaptive time-stepping TVD solver for Boussinesq modeling of breaking waves and coastal inundation", *Ocean Modelling*, 43-44, 36-51.
41. Ma, G., Shi, F. and Kirby, J. T., 2012, "Shock-capturing non-hydrostatic model for fully dispersive surface wave processes", *Ocean Modelling*, 43-44, 22-35.
42. Shi, F., Hanes, D. M., Kirby, J. T., and Erikson, L., Barnard, P., and Eshleman, J., 2011, Pressure gradient-driven nearshore circulation on a beach influenced by an adjacent large inlet, *J. Geophys. Res.*, doi:10.1029/2010JC006788.
43. Ma, G., Shi, F., and Kirby, J. T., 2011, A polydisperse two-fluid model for surfzone bubble simulation, *J. Geophys. Res.*, doi:10.1029/2010JC006667.

44. Ma, G., Shi, F., Qi, D., and Liu, S., 2011, Hydrodynamic modeling of Changjiang Estuary: model skill assessment and large-scale structure impacts, *Applied Ocean Research*, 33, 69-78.
45. Shi, F., Kirby, J. T., and Ma, G., 2010, Modeling quiescent phase transport of air bubbles induced by breaking waves, *Ocean Modelling*, 35, 105-117.
46. Grilli, S.T., Dubosq, S., Pophet, N., Perignon, Y., Kirby, J. T., and Shi, F., 2010, Numerical simulation of co-seismic tsunami impact on the North shore of Puerto Rico and far-field impact on the US east coast: a first-order hazard analysis, *Natural Hazards and Earth System Sciences*, 10, 2109-2125.
47. Qi, H., Cai, F., Lei, G., Cao, H., and Shi, F., 2010, The response of three main beach types to tropical storms in South China, *Marine Geology*, 275, 244 - 254.
48. Zhang, W., Shi, F., Hong, H., Shang, S. and Kirby, J. T., 2010, Tide-surge interaction intensified by the Taiwan Strait, *J. Geophys. Res.*, 115, C06012, doi:10.1029/2009JC005762.
49. Waythomas C.F., Watts P., Shi F., and Kirby J. T., 2009, Pacific basin tsunami hazards associated with mass flows in the Aleutian Arc of Alaska, *Quaternary Science Review*, 28, 11-12, 1006 - 1019, doi:10.1016/j.quascirev.2009.02.019
50. Smith K. A., North E. W., Shi F. Chen S-N, Sanford L., Hood R. R., Koch E. W. and Newell R. I. E., 2008, Modeling the effects of oyster reefs and breakwaters on seagrass beds, *Estuaries and Coasts*, 32 (4), 748-757.
51. Shi, F. and Kirby, J. T., 2008, Discussion of 'Wave setup and setdown generated by obliquely incident waves' by T.-W. Hsu et al, *Coastal Engrng*, 53, 865-877, 2006', *Coastal Engrng.*, 55, 1247-1249.
52. Shi, F., Kirby, J. T., Hanes, D., 2007, An efficient mode-splitting method for a curvilinear nearshore circulation model, *Coastal Engineering*, 54, 811-824.
53. Chen S-N, Sanford, L. P., Koch, E. W., Shi, F., North, E. W., 2007, A nearshore model to investigate the effects of seagrass bed geometry on wave attenuation and suspended sediment transport, *Estuaries and Coasts*, Vol. 30, No.2, 296-310.
54. Grilli, S. T., Ioualalen, M., Asavanant, J., Shi, F., Kirby, J. T., Watts, P., 2007, Source constraints and model simulation of the December 26, 2004, Indian Ocean Tsunami, *Journal of Waterway, Port, Coastal and Ocean Engineering*, Special Issue on Tsunami Engineering, Vol. 133, No.6, 414-428.
55. Shi, F. and Kirby, J. T., 2005, Curvilinear parabolic approximation for surface wave transformation with wave-current interaction *Journal of Computational Physics*, 204, 562-586
56. Zheng, Q, Yuan, Y., Shen, S.S., Huang, N. E., Klemas, V., Yan, X., Shi, F., Zhang, X., Zhao, Z., Li, X., and Clemente-Colon, P., 2004, Evidence of upstream solitons and downstream wavetrain in a near resonant air flow over an island topography, *International Journal of Remote Sensing*, 25 (21), 4433- 4440, DOI: 10.1080/01431160310001609716
57. Kong, Y., Shi, F., and Ding P., 2004, A statistical model for predicting storm-induced sediment deposition in North-Channel at Yangtze River Mouth, *Journal of ECNU (Nature Science, in Chinese)*, 2004 (1), 25-34.
58. Chen, Q., Kirby, J. T., Dalrymple, R. A., Shi, F. and Thornton, E. B., 2003, Boussinesq modeling of longshore currents, *J. Geophys. Res.*, Vol. 108, No. C11, 3362
59. Shi, F., Svendsen, I.A., Kirby, J.T., and Smith, J. M., 2003, A curvilinear version of a Quasi-3D nearshore circulation model, *Coastal Engineering*, 49 (1-2), 99-124
60. Shi, F., Kirby, J. T., Dalrymple, R. A., and Chen Q., 2003, Wave simulations in Ponce De Leon Inlet using Boussinesq model, *Journal of Waterway, Port, Coastal and Ocean Engineering*, 129(3), 124-135.
61. Shi, F., Dalrymple R. A., Kirby, J. T., Chen, Q. and Kennedy, A., 2001, A fully nonlinear Boussinesq Model in generalized curvilinear coordinates, *Coastal Engineering*, 42(4), 237-258.
62. Shi, F., Zhu, S., Zhu, J. and Ding, P., 2000, Numerical study on residual current and its effect on mass transport in the Hangzhou Bay and the Yangtze Estuary, I. A 3-D joint model of the Hangzhou Bay and the Yangtze Estuary, *ACTA Oceanologica Sinica*, 22(5): 1-12.
63. Zhu S., Ding, P., Shi, F. and Zhu, J., 2000, Numerical study on residual current and its effect on mass transport in the Hangzhou Bay and the Yangtze Estuary, II. Residual current and mass transport in winter, *ACTA Oceanologica Sinica*, 22(6): 1-11.
64. Shi, F., Ding, P. and Kong, Y., 1999, A numerical fluid dynamic model using fine boundary-fitted grids in estuarine and tidal flats, *China Ocean Engineering* 13(2), 115-124.
65. Bao X., Sun, W. and Shi, F., 1999, A three-dimensional coastal barotropic model in generalized curvilinear grid, *Chinese Journal of Oceanology and Limnology* 17, 289-299.
66. Ding, P., Shi, F. and Kong, Y., 1999, A three-dimensional diffusion equation of suspended sediment with waves and currents, *Chinese Science Bulletin*, 44(19), 1814-1817.
67. Yu, Z., Zhang, J., Shi, F., and Wu, C., 1999, New method for evaluating toxicity of heavy metals on marine macroalgae, *Oceanol. Limnol. Sin.*, 30 (2), 199-205.

68. Shi, F., Sun, W. and Wei, G., 1998, A WDM method on generalized curvilinear grid for calculation of storm surge flooding, *Applied Ocean Research*, 19(4), 275-282.
69. Shi, F., Ding, P. and Kong, Y., 1998, An implicit numerical model using contravariant velocity components and calculations in a harbour-channel area, *ACTA Oceanologica Sinica*, 17(4), 423-432.
70. Ding, P., Kong, Y. and Shi, F., 1998, Radiation stress of water waves and its calculation, *Journal of ECNU (Natural Science)*, 1998(1), 82-87.
71. Ding, P., Shi, F. and Kong, Y., 1998, Numerical calculation of Combined refraction-diffraction of random waves in non-uniform currents, *Journal of ECNU (Natural Science)*, 1998(2), 69-76.
72. Shi, F., Sun, W. and Wei, G., 1997, A self-adaptive grid model for the simulation of moving lateral boundaries in problems involving the shallow water equations, *ACTA Oceanologica Sinica*, 19 (2), 1-9.
73. Shi, F. and Sun, W., 1997, Hopscotch method in the numerical forecasting of storm surges, *Journal of Ocean University of Qingdao*, 27(3), 271-276.
74. Xu, Z., Shi, F., Lou, S. and Shen, S.S., 1997, Velocities of precursor soliton generation of single-layer flow, *Chin. J. Oceanol. Limnol*, 15(2), 129-136
75. Xu, Z., Shi, F. and Shen, S.S., 1997, On period and amplitude of the locally forced soliton generation of single-layer flow, *Progress in Nature Science*, 7 (5), 574-582.
76. Shi, F. and Zheng, L., 1996, A BFG model for calculation of tidal current and diffusion of pollutants in nearshore areas, *ACTA Oceanologica Sinica*, 15 (2), 283-296.
77. Xu, Z., Shi, F., Lou S. and Shen S.S., 1996, Theoretical mean wave resistance of precursor soliton generation of single-layer flow, *Chin. J. Oceanol. Limnol*, 14(4), 330-336.
78. Xu, Z., Xu Y. and Tian J., Shi, F., 1996, On the theoretical mean wave resistance of precursor soliton generation II. Numerical calculation, *Journal of Ocean University of Qingdao*, 26 (2), 139-146.
79. Shi, F. and Sun, W., 1995, Development and application of a moving boundary model in a polar coordinate transformation, *Oceanol. Limnol. Sinica*, 26 (4), 369-376.
80. Shi, F. and Sun, W., 1995, A variable boundary model of storm surge flooding in generalized curvilinear grids, *International Journal for Numerical Methods in Fluids*, 21 (8), 642-651.
81. Sun, W., Yang, Z. and Shi, F., 1994, On the numerical prediction models of storm surge inundation, *Journal of Ocean University of Qingdao*, 24 (3), 293-300.
82. Xu, Z., Shi, F. and Shen, S.S., 1994, A numerical calculation of forced supercritical soliton in a single-layer flow, *Journal of Ocean University of Qingdao*, 24 (3), 309-319.
83. Shi, F. and Sun, W., 1993, Numerical simulations of storm surge inundations in partial areas of the Bohai Sea, *Oceanol. Limnol. Sinica*, 24 (1), 16-23.