Kelin Hu
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EDUCATION
B.S., East China Normal University (1998); Ph.D., East China Normal University (2003)

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BIOGRAPHY

In the past several years, I developed a computer modeling system to predict storm surges (ADCIRC/DELFT3D), hurricane waves (SWAN), and corresponding wetland erosion and sedimentation (DELFT3D) under unstructured meshes and curvilinear grids for gulf-scale and regional applications; improved a parametric hurricane wind model based on the asymmetric Holland-type vortex models; analyzed directional spectra of hurricane-generated waves in the Gulf of Mexico; did numerical study of vegetation impact on reducing storm surge by wetlands; and carried numerical modeling of salt marsh morphological change induced by Hurricane Sandy.

My research experiences in China include 2D/3D simulations of tidal current, salinity and sediment transport in the area of Yangtze estuary and Hangzhou bay; prediction of storm-induced wind-waves in the Yangtze estuary; development of a model system, which includes storm-induced wind model, hydrodynamic model and sediment model, for simulating and predicting water levels, waves and morphological changes during a storm event in the Yangtze estuary;

SELECTED PUBLICATIONS

Book chapters & reports
Wang, H., Chen, Q., Hu, K., Snedden, G.A., Hartig, E.K., Couvillion, B.R., Johnson, C.L., Orton, P.M., 2017. Numerical modeling of the effects of Hurricane Sandy and potential future hurricanes on spatial patterns of salt marsh morphology in Jamaica Bay, New York City. *USGS Open-File Report* 2017-1016. https://doi.org/10.3133/ofr20171016.
Tao, J., Benger, W., Hu, K., Mathews, E., Ritter, M., Diener, P., Kaiser, C., Zhao, H., Allen, G., and Chen, Q., 2013. An HPC framework for large scale simulations and visualizations of oil spill trajectories. In: *Coastal Hazards*, Huang, W., Wang, K., and Chen, Q. (ed.), ASCE, ISBN 978-0-7844-1266-4, PP. 13-23, doi: 10.1061/9780784412664.002.
Hu, K., Q. Chen, and P. J. Fitzpatrick, 2012. Assessment of a parametric surface wind model for tropical cyclones in the Gulf of Mexico (http://dx.doi.org/10.5772/51288). In: *Advances in Hurricane Research -Modelling, Meteorology, Preparedness and Impacts*, Hickey, K. (ed.), InTech, ISBN 980-953-307-559-9, doi: 10.5772/51288.

Peer-reviewed journal articles

Liu, K., Chen, Q., Hu, K., Xu, K., Twilley, R.R., 2018. Modeling hurricane-induced wetland-bay and bay-shelf sediment fluxes. *Coastal Engineering* 135, 77-90.

Hu, K., Chen, Q., Wang, H., Hartig, E.K., and Orton, P.M., 2018. Numerical modeling of salt marsh morphological change induced by Hurricane Sandy. *Coastal Engineering* 132, 63-81.

Wang, H., Chen, Q., LaPeyre, M. K., Hu, K., and LaPeyre, J. F., 2017. Predicting the impacts of Mississippi River diversions and sea-level rise on spatial patterns of eastern oyster growth rate and production. *Ecological Modelling* 352, 40-53.

Wang, H., Chen, Q., Hu, K., and LaPeyre, M. K., 2017. A modeling study of the impacts of Mississippi River diversion and sea-level rise on water quality of a deltaic estuary. *Estuaries and Coasts* 40(4), 1028-1054.

Xu, K., Mickey, R.C., Chen, Q., Harris, C.K., Hetland, R.D., Hu, K., Wang, J., 2016. Shelf sediment transport during hurricanes Katrina and Rita. *Computers & Geosciences* 90, 24-39.

Hu, K., Chen, Q., Wang, H., 2015. A numerical study of vegetation impact on reducing storm surge by wetlands in a semi-enclosed estuary. *Coastal Engineering* 95, 66-76.

Hu, K., Chen, Q., and Kimball, K.S., 2012. Consistency in hurricane surface wind forecasting: An improved parametric model, *Natural Hazards* 61, 1029-1050.

Hu, K., and Chen, Q., 2011. Directional spectra of hurricane-generated waves in the Gulf of Mexico. *Geophysical Research Letters*, 38, L19608, doi:10.1029/2011GL049145.

Du, P., Ding, P., and Hu, K., 2010. Simulation of three-dimensional cohesive sediment transport in Hangzhou Bay, China. *Acta Oceanologica Sinica*, 29(2): 98-106.

Hu, K., Ding, P., Wang, Z., and Yang, S., 2009. A 2D/3D hydrodynamic and sediment transport model for the Yangtze Estuary, China. *Journal of Marine Systems* 77, 114-136.

Hu, K., and Ding, P., 2009. The effect of deep waterway constructions on hydrodynamics and salinities in Yangtze estuary, China. *Journal of Coastal Research*, SI 51, 961-965.

Hu, K., and Ding, P., 2007. Numerical study of wave diffraction effect introduced in the SWAN Model. *China Ocean Engineering*, 21(3): 495-506.

Hu, K., Ding, P., Ge, J., and Kong, Y., 2007. Modelling of storm surge in the coastal waters of Yangtze estuary and Hangzhou bay, China. *Journal of Coastal Research*, SI 50, 527-533.

Chen, Q., Gu, H., Zhou, J., Meng, Y., and Hu, K., 2007. Trends of soil organic matter turnover in the salt marsh of the Yangtze River estuary. *Journal of Geographical Sciences*, 17(1): 101-113.

Chen, Q., Zhao, H., Hu, K., and Douglass, S.L., 2005. Prediction of wind waves in a shallow estuary. *Journal of Waterway, Port, Coastal and Ocean Engineering*, 131(4): 137-148.

Hu, K., Ding, P., Zhu, S., and Cao, Z., 2000. 2-D current field numerical simulation integrating Yangtze Estuary with Hangzhou Bay. *China Ocean Engineering*, 14(1): 89-102.

RESEARCH INTERESTS

Modeling of storm surge, hurricane waves, sediment transports and morphological developments in coastal and estuarine areas.