Coast to Cosmos Lecture Series

Morphodynamics of Coastal Wetlands

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Digital Media Center 1034
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Abstract:

In this talk I will discuss my current effort in modeling the long-term and large-scale evolution of coastal wetlands. The model focuses on two major processes: marsh edge erosion and marsh interior fragmentation. Marsh edge erosion depends on the wave field in the mudflats, which is calculated my mean of semi-empirical equations and by using an efficient algorithm for fetch quantification. Possible effects of storm surges are also included. Marsh interior fragmentation is mainly caused by ponding, whose occurrence is predicted by using a simplified model for groundwater flow in the marsh soil. Groundwater flow is affected by the channel drainage network and by the ever changing mudflat morphology. As such, marsh edge erosion and interior fragmentation are tightly coupled. The model might help predicting the effect of river sediment diversion on the reduction of marsh loss and building of new marshland.

Speaker's Bio:

I started an assistant professor position in the Department of Oceanography and Coastal Sciences and in the Center for Computation and Technology at Louisiana State University in January 2015. My research focuses on the processes that shape coastal environments. I am particular interested in those disciplines that couple physical and biochemical aspects, e.g. ecogeomorphology and biogeology. I carry forward my research using mathematical models, laboratory experiments and field work.

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