Earth System Model Development for Integrated Coastal Modeling (ICoM)

Earth System Model Development comprises one of the major components of the Integrated Coastal Modeling (ICoM) project, with a fundamental challenge of developing key processes to represent the transition from the watershed to the global ocean, thus bridging the land–river–ocean numerical interface. Our ultimate goal is to investigate the process-dependence of coastal system evolution, with cross-cutting implications for flooding, human land use, and hypoxia. Incorporation of coastal processes within E3SM will enable coastal climate change effects to be quantified for a broad and integrated understanding of coastal science. This presentation will provide an overview of model development thrusts including estuary dynamics, river flow and transport, river-land-ocean coupling, and an integrating effort to evaluate all of these new capabilities in coupled model experiments.