TEMPLE UNIVERSITY
Department of Mathematics

Applied Mathematics and Scientific Computing Seminar

Room 617 Wachman Hall

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Computational Methods for Storm Surge Modeling

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Abstract.

Coastal flooding due to severe tropical storms is one of the most wide-spread and damaging hazards faced around the world. The threat of these events has grown not only due to increased population and economic reliance on coastal regions but also due to the threat of climate change. Computational predictive capabilities are critical to addressing this threat but require the ability to handle multiple, disparate scales and remain tractable under the necessity of large ensembles. In this talk a number of efforts towards addressing these and other issues related to storm surge will be discussed. These include the use of adaptive mesh refinement, solving the multi-layer shallow water equations, incorporation of non-grid-aligned structures into the mesh, and new work towards leveraging a hybrid analog/digital approach to solving more general non-linear PDEs.