

Challenges and Successes in Coastal Ocean Modeling

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The coastal ocean is rich with physical and biological processes, often occurring at vastly different scales. In this talk, we will outline some of these processes and their mathematical description. We will then discuss the current state of numerical methods for coastal ocean modeling and recent research into improvements to these models, focusing on accuracy and efficiency for high performance computing. We will also highlight some of the successes of these models in simulating complex events, such as hurricane storm surges. Finally, we will outline several interesting challenges which are ripe for future research.