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Computing Coherent Structures from a Shallow Water Model of the Chesapeake Bay

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A typical numerical solution to a Shallow Water initial-boundary value problem generates a velocity field, a vector field that is defined over a finite time interval and on a discrete spatial domain. The velocity field in turn gives rise to a dynamical system from which one computes invariant regions and coherent structures. In this talk we will discuss the mathematical and computational issues that arise in treating a realistic model of the Chesapeake Bay by solving the Shallow Water Equations and analyzing the resulting velocity field.