

2002 Ocean Sciences Meeting Search Results:

Your query was:

mitgcm

HR: 10:50h
 AN: **OS41N-09**
 TI: **Combining Measurements and a Circulation Model in the Block Island Sound Outflow Region with a Linear, Barotropic Inverse Model**
 AU: *** Edwards, C A**
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 AB: A coastal ocean observing system has been developed in the shelf waters outside of Block Island Sound in the Mid-Atlantic Bight. This region is dynamically active, with strong tides, complex bathymetry, and substantial horizontal buoyancy gradients. Narrow fronts are regularly observed in temperature, salinity, and ocean color. The observing system includes both data collection and circulation modeling modules, which are connected through the use of a linear, barotropic inverse model. Depth-averaged ADCP records are used to generate 2-dimensional, subtidal, along-shelf flows that minimize data-model misfit and inverse model errors. These fields provide boundary conditions for a 3-dimensional, stratified, general circulation model (MITgcm) and improve agreement between the interior mooring records and the forward model. However, errors remain and can be attributed to the underlying assumptions of the inverse model. Linear versus quadratic drag laws result in only small error. Larger model-data discrepancies are associated with the absence of vertical shear. The largest error results from the omission of momentum advection in the inverse model. This talk will discuss the modeling component of this observing system and the errors that result from the use of the linear, barotropic inverse model for one set of observations in this region. We will compare strong versus weak constraint inverses and discuss alternate methods to reduce model-data errors associated with nonlinear advection.
 DE: 4219 Continental shelf processes
 DE: 4235 Estuarine processes
 DE: 4255 Numerical modeling
 DE: 4263 Ocean prediction
 SC: OS
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