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Operational modeling of a complex estuary-plume system

The anchoring framework for the NSF Science and Technology Center for Coastal Margin Observation & Prediction (CMOP) is SATURN, a coastal margin 'collaboratory' that integrates three essential systems: an observation network, a modeling system, and a cyber-infrastructure.

The modeling system is denoted by "Virtual Columbia River", a name that reflects the vision of data-informed simulations as a virtual reality that can be freely queried for multiple purposes and in multiple forms. Since inception circa 1996, the Virtual Columbia River has produced a broad, progressively more interdisciplinary, set of simulations. However, two types of operational products for water circulation anchor the entire modeling system: daily forecasts and long-term simulation databases.

Daily forecasts of circulation are designed primarily for short-term (typically 24-48h ahead) use, which includes supporting the planning and implementation of oceanographic cruises. By contrast, long-term simulations databases support applications across a wide range of temporal scales (hours to multiple years). These applications includecharacterizing contemporary the variability of the contemporary coastal margin, and predicting its changeunder specific scenariosof climate change and anthropogenic actions.

We rely on SATURN's observation network and cyber-infrastructure to extensively assess and document the skill of circulation forecasts and of simulation databases, and to transfer modeling products to a wide and diverse set of users: scientists, educators, operational teams, managers, and decision makers.

Links:

SATURN: http://www.stccmop.org/saturn

Virtual Columbia River: http://www.stccmop.org/datamart/virtualcolumbiariver

Forecasts:http://www.stccmop.org/datamart/virtualcolumbiariver/forecasts

Simulation databases:http://www.stccmop.org/datamart/virtualcolumbiariver/simulationdatabases

Climatological Atlas: http://www.stccmop.org/datamart/virtualcolumbiariver/simulationdatabases/climatologicalatlas

Observation network: http://www.stccmop.org/datamart/observation_network