

Supplemental Information Sheet for Coastal and Ocean Modeling Testbed (COMT) FY13 Federal Funding Opportunity (FFO) for 5yr Cooperative Agreement

The purpose of this information sheet is to augment the Federal Funding Opportunity (FFO) by providing amplifying material about the Coastal and Ocean Modeling Testbed (COMT) and offer expanded information on targeted near term priorities.

The mission of the COMT is to use targeted research and development to accelerate the transition of scientific and technical advances from the coastal and ocean modeling research community to improve identified operational ocean products and services (i.e. via research to operations and also operations to research). Activities conducted in the COMT should help determine how to implement models more effectively, how to improve knowledge of model uncertainty, how to better integrate observations and models, and/or how to transition recent advances in algorithms, parameterizations, evaluation tools, and more, into models that are used operationally. Operational model use, as indicated in COMT governing documents, can be interpreted as more than forecast models. The COMT is not intended to fund research into the development of new data assimilation schemes, numerical algorithms, parameterizations, but rather it is about evaluating already developed schemes for potential inclusion in operational use. This would require coordination with operational centers from planning through development and testing stages. Using operational modeling systems to conduct research and development would facilitate the eventual successful research to operations transition.

The FFO identified two (2) high level priorities for this FFO. This document provides additional details on priority scientific and technical challenges that NOAA seeks to address through this FFO.

1. Maintain and continue to develop the Coastal Ocean Modeling Testbed within a community modeling environment.

Cyberinfrastructure: The cyberinfrastructure is the backbone of the COMT. In order to improve the COMT resources and to continue to develop tools for the coastal and ocean modeling operational research community, NOAA seeks maintenance of the current cyberinfrastructure and continued development to enable data infrastructure, standards and metrics for conducting model development and assessment. (See http://www.ioos.gov/modeling/reports/part1_testbed_to_improve_models_june2012.pdf for background information on the cyberinfrastructure)

Community standards: Establish a systematic approach to keep operational models and forecast systems (e.g. ROMS, FVCOM, ADCIRC) up-to-date with the community models and standards.

2. Directly address key scientific and technical challenges facing NOAA, other Federal Agencies and U.S. IOOS[®] Regional Associations for improving operations and services.

Model and forecast system assessments: Assess the maturity, readiness and service values (user applications) of coastal, ecological, and inundation models targeted for transition from research to operations. For ecological forecasting models, the NOAA Ecological Forecasting Roadmap

identified three areas including: Harmful Algal Blooms (HAB), Hypoxia, and Pathogen Predictions as priorities for transition from research to forecasting services.

Assess forcing and boundary conditions (feasibility, uncertainty, key deficiencies) required for operational forecast systems, such as river discharge, surface momentum and heat fluxes, bathymetry, and oceanic lateral boundary conditions.

For inundation forecast models, the NOAA Storm Surge Roadmap identified a large number of observational instruments are available in the U.S. island regions such as the Caribbean and Pacific. NOAA is interested in identifying potential future operational models with ability to represent flooding and inundation due to precipitation and storm surge in areas of steep topography. These models, when used for ensemble predictions, could meet requirements for computational cost for these island areas.

Data assimilation technique assessment: NOAA is developing coastal data assimilation capability for the NOAA suite of coastal regional and estuarine models. NOAA needs to assess various data assimilation approaches (e.g. 4-D Variational vs. 3-D Variational techniques), methodologies and suitability of observing networks for operational modeling and prediction for the coastal ocean.