US IOOS Coastal and Ocean Modeling Testbed Roundup

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COMT Project Manager
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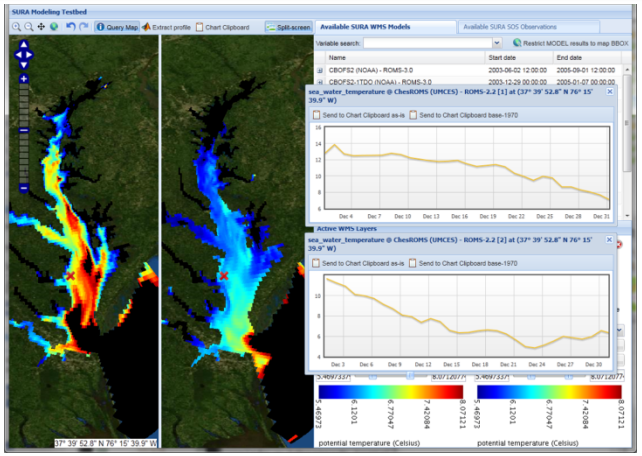
Outline

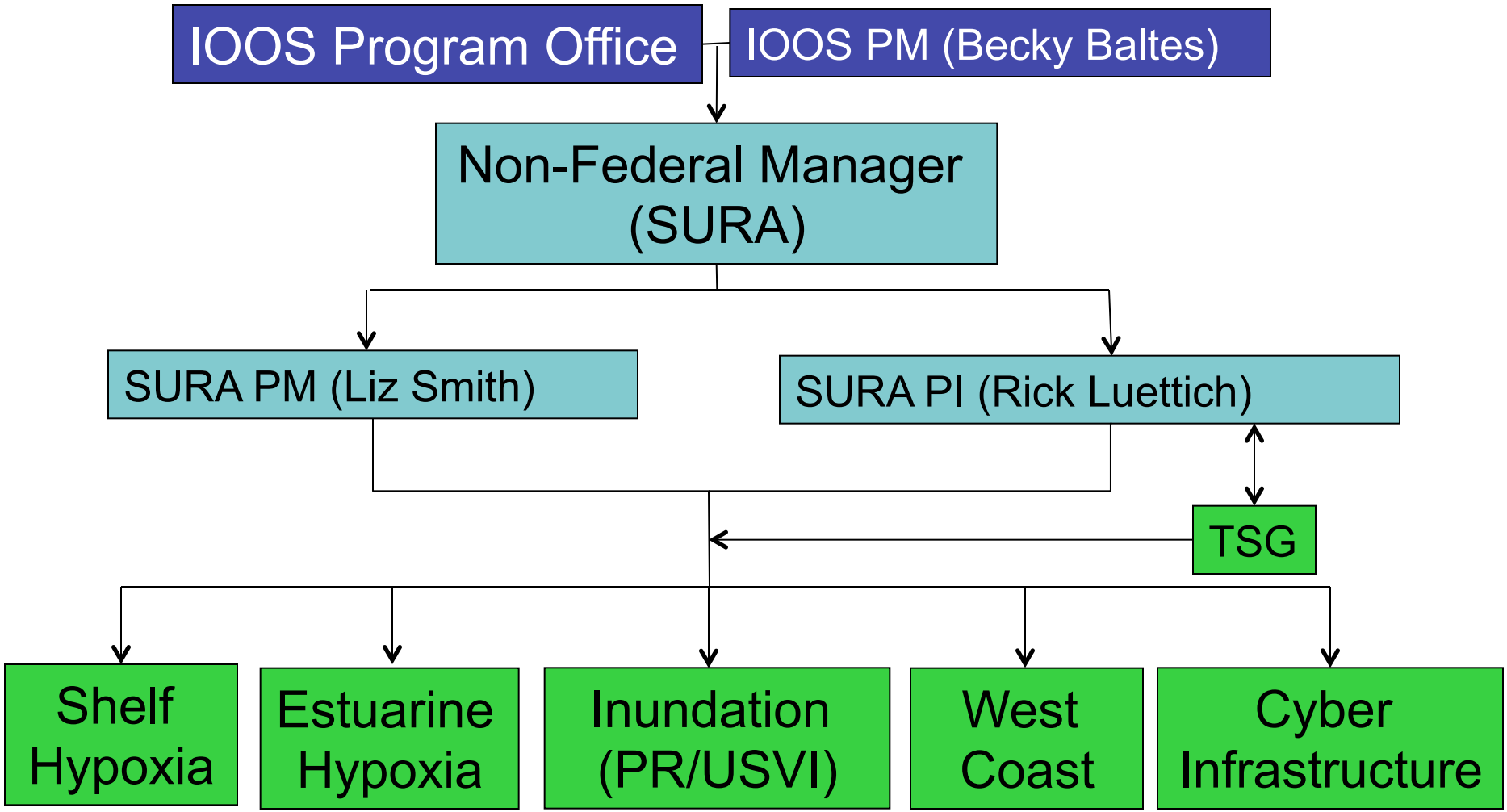
1. Refresher Background
2. COMT Role in the community/NOAA
3. Year in Review
4. EF/SS Roadmaps
5. New Award/Projects
6. Looking Forward

COMT History and Background

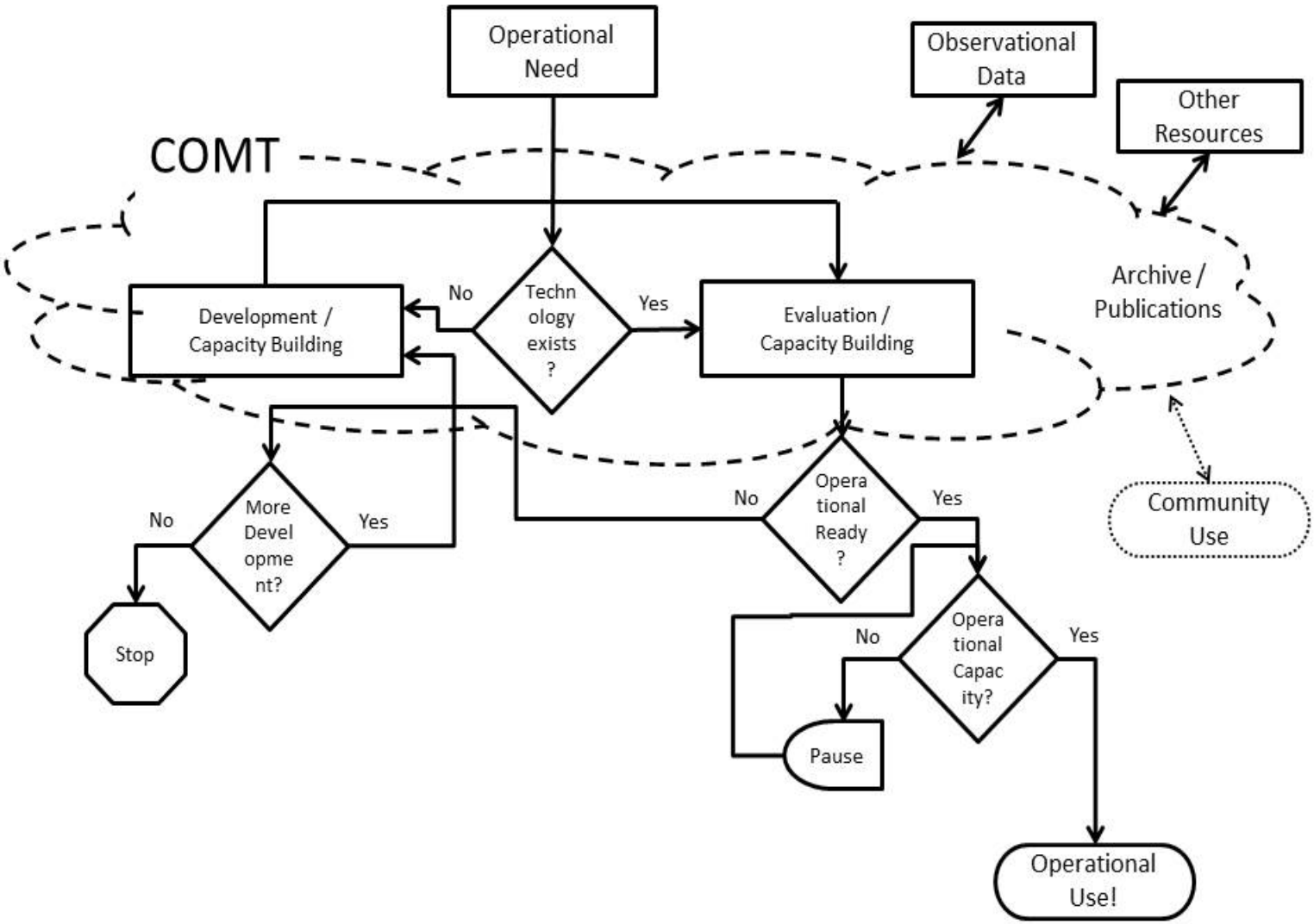


- Unique Elements:
  - Intended to be inter-agency
  - Managed by a non-federal partner
- Funding Background
  - 2010-2012 $5M
  - 2013-2014: $2.05M, goal at least $1M/yr, expansion poss.
- Composition (SURA non-fed partner and lead for execution)
  - Multiple science teams, cyber support and testing
  - Multi-sector engagement (federal, academia, industry)

Current Organizational Chart



COMT Role


Operational Need
Observational Data
Other Resources
COMT
Archive / Publications
Development / Capacity Building
No
Technology exists ?
Yes
Evaluation / Capacity Building
No
More Development?
Yes
Stop
No
Operational Ready ?
Yes
Community Use
No
Operational Capacity?
Yes
Pause
Operational Use!

COMT Ongoing Goals

1. Advance common infrastructure for access, analysis and visualization of all ocean model data produced by the Federal Backbone and the IOOS Regions

2. Improve R2O and O2R by building stronger relationships between academia and operational centers through collaboration

3. Advance skill metrics and assess models in different regions and dynamic regimes

4. Transition models, tools, toolkits and other capabilities to federal operational facilities

5. Allow for both continuity of effort and new projects

Year in Review - Successes

1. JGR – 16 manuscripts plus synthesis manuscript
2. Community Building
3. New Award in Place
4. Connect to EF Roadmap opportunities
5. Coordination with SS Roadmap

Transitioning an Estuarine Hypoxia Model to Operations in the Chesapeake Bay

Virginia Institute of Marine Science, College of William & Mary
Marjorie Friedrichs (PI)
Carl Friedrichs (co-PI)
Aaron Bever (consultant)
Ike Irby (graduate student)
Jian Shen (unfunded collaborator)

Woods Hole Oceanographic Inst.
Malcolm Scully (co-PI)

Center for Environmental Science, University of Maryland
Raleigh Hood (co-PI)
Hao Wang (graduate student)
Wen Long (unfunded collaborator)

NOAA/CSDL
Lyon Lanerolle (co-PI)
Frank Aikman (unfunded collaborator)

Objective

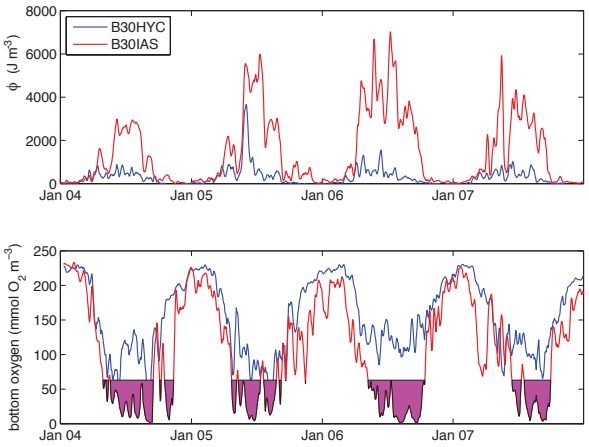
Assess the readiness/maturity of a suite of existing estuarine dissolved oxygen models for producing predictions of hypoxia within the Chesapeake Bay, in an effort to accelerate the transition of hypoxia model formulations from academic research to Federal operational and regulatory centers.

Seasonal and Short-term Forecast System and Nutrient Load Scenarios for Hypoxia Prediction in the Northern Gulf of Mexico

Katja Fennel (PI)	***Dalhousie***
Robert Hetland	***Texas A&M***
Jiangtao Xu	***NOAA Coast Survey Development Lab***
Dong S. Ko	***Naval Research Laboratory***
Dubravko Justic	***Louisiana State University***

Partners

*Frank Aikman (**CSDL**), John Lehrter (**EPA**), Mike Murrell (**EPA**)*

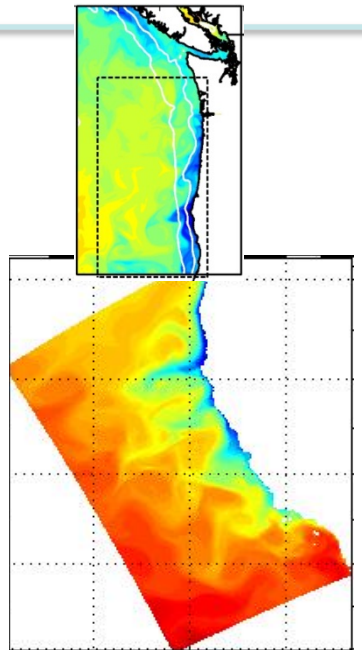


Fennel et al. JGR SURA issue (2013)

Objective

Implement and demonstrate a real-time hypoxia forecasting system applicable to the hypoxia-prone Northern Gulf of Mexico.

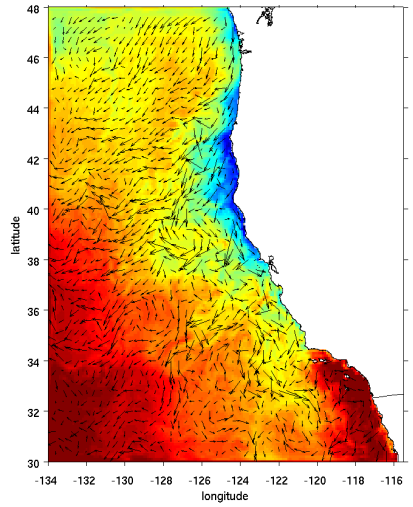
The US West Coast Component of the COMT



Alexander L. Kurapov (PI) ***Oregon State University***
Christopher A. Edwards ***University of California at Santa Cruz***
Yi Chao ***Remote Sensing Solutions, Inc***

Objectives

- Compare 3 existing models as a step toward a coordinated super-regional modeling capability for the U.S. West Coast.
- All the models are based on ROMS but differ in resolution.
- The data assimilation components are different for each system. Pros and cons of each system will be analyzed.
- Assess accuracy in forecasting surface and subsurface fields.
- Compare performance of 3 different bio-chemical models (NPZDO, NEMURO, COSINE) within a single ROMS domain.



Puerto Rico/U.S. Virgin Islands Surge and Wave Inundation Model Testbed

André van der Westhuysen, PI/Modeler — ***IMSG at NOAA/NWS/NCEP/EMC***

Numerical Modeling Team:

Joannes Westerink, Team co-PI	***University of Notre Dame***
*Jane Smith, Team co-PI**	***USACE-ERDC***
Juan Gonzalez, Modeler	***University of Notre Dame***
Aurelio Mercado+Student, Modeler	***University of Puerto Rico***
Christina Forbes, Modeler	***NOAA/NWS/NCEP/NHC***

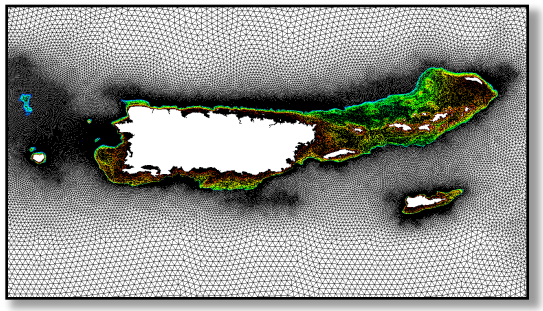
Operational Assessment Team:

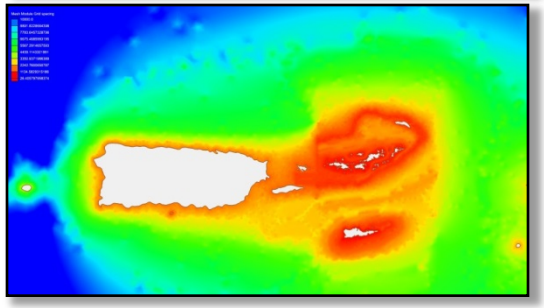
*Jamie Rhome, Team co-PI**	***NOAA/NWS/NCEP/NHC***
*Jesse Feyen, Team co-PI**	***NOAA/NOS/OCS/CSDL***

Data Management Team:

*Julio Morell, Team co-PI**	***CariCOOS/University of Puerto Rico***

**In-kind*





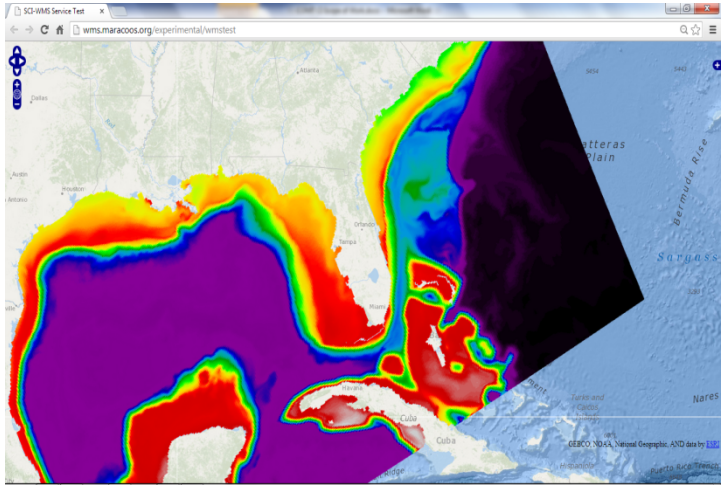
Objectives

- Extend the present wave/surge operational forecasting capability from mild-sloped coastal areas such as the US East and Gulf of Mexico coasts to steep-sloped areas such as around Caribbean and Pacific islands

- Transition this capability to NOAA's National Hurricane Center and local WFOs.

Cyberinfrastructure for a Coastal & Ocean Modeling Testbed

Eoin Howlett (PI)	Applied Science Associates (ASA)
David Foster	ASA
David Stuebe	ASA
Brian McKenna	ASA
Charlton Galvarino	Collaborator, Consultant



SciWMS image below for Ruoying He's model rendered directly from a DAP server.

Objectives

The goal of this project is to improve the function and performance of SciWMS so it can be used to visualize all compliant model results and observational data stored on the COMT archive server and to develop a SciWMS based web client to perform the visualization

COMT Challenges Ahead

- Fit EF Roadmap requirements into COMT planning and grant cycle
- Process to enable other offices and teams to leverage COMT and its infrastructure to make progress
- Develop longer term implementation plan and process for moving work through the COMT
- Better connecting to interagency partners

COMT Future

- FY14: Supervise award with SURA and prepare for new projects
- Improve transitions and align projects more thoroughly with federal liaisons and operational development planning
- Cyberinfrastructure development for COMT and IOOS DMAC tailored to needs
- Permanent Testbed infrastructure, advance permanent data archive for models and obs

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301-427-2427
http://www.ioos.noaa.gov/modeling/testbed.html

Back Up Slides

Mission

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).

Vision

A National Coastal and Ocean Modeling Testbed to enhance the accuracy, reliability, and scope of the federal suite of operational ocean modeling products, while ensuring its diverse user community is better equipped to solve challenging coastal problems and recognize the COMT to be where the best coastal science is operationalized.

COASTAL OCEAN MODELING TESTBED