

UNCERTAINTY IN NUMERICAL MODEL APPLICATIONS TO MANAGE COASTAL EUTROPHICATION

Spring 2021 Webinar Series and Workshop

Webinar Series and Workshop Goals

The goals of this virtual webinar series and workshop are to:

- #1 Educate managers on basic approaches to estimating uncertainty in numerical model applications to investigate coastal eutrophication.
- #2 Discuss the relevance of these approaches for ongoing investigations of effects of land-based nutrients in the San Francisco Bay estuary and the southern California Current System.

Who Should Attend? How to Sign Up?

Who Should Attend: Scientists, staff of California sanitary agencies, stormwater agencies, water quality regulatory and natural resource agencies.

To sign up for our listserv and get updates, click [here](#).

To review background materials, click [here](#).

Why Uncertainty? Two separate efforts are independently using coupled physical and biogeochemical numerical models to quantify the effect of land-based nutrients on eutrophication in the San Francisco Bay (San Francisco Nutrient Management Strategy) and on the California Coast (Ocean Protection Council Coastal Ocean Acidification and Hypoxia (OAH) Modeling). The outcomes of these modelling research programs could drive important management decisions on nutrient management to the tune of billions of dollars. For managers and policy makers to confidently use the results of the model, the model uncertainty would ideally be smaller than the change the model is predicting is attributable to anthropogenic nutrients. Managers are seeking information on approaches to take these uncertainty analyses to the next level and their efficacy in how models are used to support management conversations.

WEBINAR SERIES: April 15- May 5, 2021

REGISTER NOW FOR OUR NEXT WEBINAR



John Dunne, Ph.D.

Oceanographer,
NOAA Geophysical Fluid
Dynamics Lab, Princeton, NJ

**When: Wed. May 05
12pm-2pm PDT**

[Register here](#)

Dr. Dunne is an expert in ocean biogeochemistry, climate, and earth system modeling with 30 years of experience developing instruments, collecting field observations, and performing analysis and modeling studies. Go [here](#) for more information.

Talk Title: Uncertainties in global projection of biogeochemical change on the US West Coast

Abstract: This talk overviews some of the central concepts in characterization of uncertainty in global and regional climate change with particular emphasis on recent work focusing on the biogeochemical modeling of seasonal to centennial change on the US West Coast. The first step in characterizing uncertainty is partitioning into explicit and implicit contributions. Partitioning of Explicit Model Uncertainty follows Hawkins and Sutton (2009) as structural (multiple models), scenario (warming trajectory), and internal (e.g. ENSO) variability. Modes of implicit uncertainty include shared bias, unresolved resolution, processes (mesoscale eddies, submesoscale fronts), and forcing, and chaos. Examples will be provided of recent modeling for both general hypothesis testing under Earth system change projections, detection and attribution of regional biogeochemical change, and to address representational biases of coastal current structures and eddies, phytoplankton functional diversity.

Half Day Virtual Workshop and Panel Discussion

Friday, May 28, 8:15 AM - noon PDT

[Click here to register as an attendee now](#)

(Invited participants and panelists do not need to register)

The virtual workshop will consist of a panel of scientists, modelers and agency staff that discuss the key benefits and limitations of uncertainty approaches for the two California coastal modeling research programs. Selected panelists will give short, summary talks and the facilitator will engage the group in discussion on questions related to the workshop theme and from the audience. The ultimate goal is to educate workshop attendees on what uncertainty approaches are relevant and how they could be specifically used to inform the key management questions.

Completed Webinars



Marjorie Friedrichs, Ph.D.
Professor, Virginia Institute
of Marine Science (VIMS)

When: Thu. Apr 15
12pm-2pm PDT

[Link to Slides and
Recording](#)

Dr. Friedrichs uses mathematical computer models and observations to quantify the impacts of climate, land-use changes and local management efforts on hypoxia, acidification, and biogeochemistry in coastal systems. Go [here](#) for more on her research.

Talk Title: Quantifying and communicating model uncertainty: a Chesapeake Bay case study



Christopher Edwards, Ph.D.
Professor, University of
California, Santa Cruz

When: Wed. Apr 21
12pm-2pm PDT

[Link to Slides and
Recording](#)

Dr. Edwards conducts research in physical oceanography and ocean ecosystem dynamics, and geophysical fluid dynamics using numerical modeling and ocean observing systems. Go [here](#) for more on his research.

Talk Title: Uncertainty in coastal ocean biological and physical modeling



Samantha Siedlecki, Ph.D.
Professor, University of
Connecticut

When: Wed. Apr 28
12pm-2pm PDT

[Link to Slides and
Recording](#)

Dr. Siedlecki is a biogeochemical oceanographer who uses numerical models to understand mechanism and influences on biogeochemical dynamics in coastal ocean ecosystems. Go [here](#) for more information on her research.

Talk Title: Forecasting the future of ocean acidification and hypoxic conditions in the Northern California Current system

Questions?

Contact us at uncertaintyinfo@sccwrp.org

Workshop Organizing Team

Allie King, Farid Karimpour, David Senn, San Francisco Estuary Institute

Minna Ho, Faycal Kessouri, Martha Sutula, Southern California Coastal Water Research Project

Phil Markle, LA County Sanitation District

Ami Latker, City of San Diego

Lorien Fono, Bay Area Clean Water Agencies