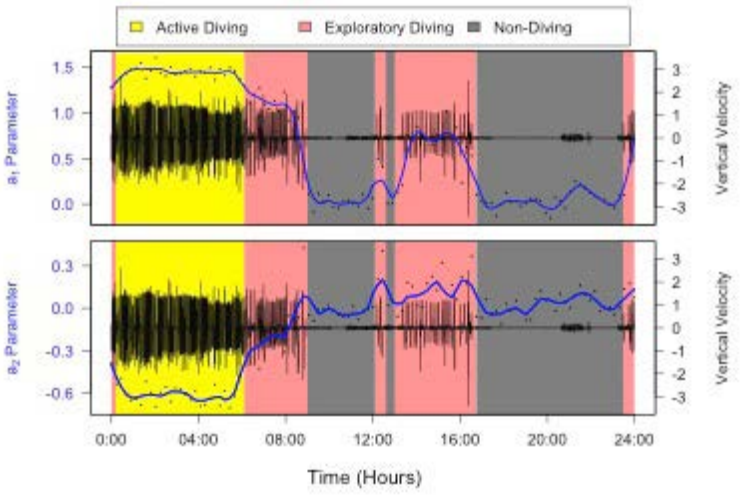
Michael Dowd

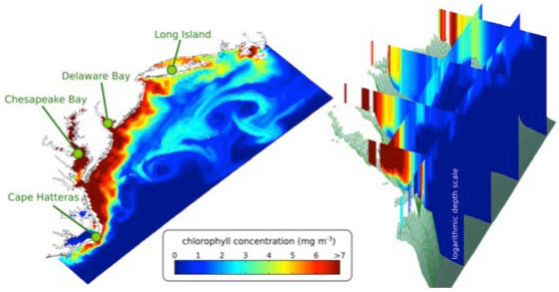
Statistics

Successful environmental prediction requires making effective use of simulation models and available observations. **Statistical modeling** provides a means to combine these two sources of information, as well as scientific knowledge, in order to learn as much as possible about the system under consideration, a procedure that is sometimes referred to as data assimilation.



Key application areas are in weather, climate, and marine forecasting. Special estimation methods must be developed and applied since complex environmental models are constantly being refined as scientific and computational advances are incorporated in the simulation code.

Observations have become increasingly sophisticated, ranging from monitoring time series, spatial imagery from satellites, and complex autonomous instruments that probe and adaptively transit the ocean depths. In the fusion of data and model lies the promise and possibility of skillful environmental prediction, and results in a better scientific understanding of these systems.



Dr. Dowd's proposed work deals with further development of advanced data assimilation that uses state-of-the-art statistical methods to move us towards this goal.

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