



## **How to reproduce a mess realistically: constructing simulations of spatially variable ecosystems**

**A. P. Martin** (1), P. J. Wallhead (1), M. A. Srokosz (1), M. J. R. Fasham (1), I. J. Totterdell (2)

(1) National Oceanography Centre, Southampton, UK (apm1@noc.soton.ac.uk), (2) Met Office, UK

There are numerous elegant examples of the consequences of embedding biological or population models into physical models of the oceans' circulation. A vast range of phenomena including non-linear waves, fractals and chaos have been demonstrated. But for prediction we often need to be able to simulate explicitly the biology in a particular region of the ocean. The chances are that any region chosen will be strongly variable, both spatially and temporally. So how can we extract the underlying biological dynamics from such 'messy' data and how can we use it to produce a robust model capable of accurately predicting the dynamics of the region either in a spatially explicit way or at a regional scale? This talk will provide an overview of recent work using several innovative approaches to tackle these fundamental problems.