1. Conference for the paper: IMS

Dynamical systems trajectory estimation via tunable models with noisy data

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We consider the estimation of a trajectory which represents the evolution of a very complex dynamical system, for which there exists an approximate computer representation with some physical parameters only known approximately, and for which scattered, noisy, incomplete observations on functionals of the trajectory over time and space are available. We consider the simultaneous tuning of weighting, smoothing and physical parameters, which influence the fitted trajectory. Such problems occur in general circulation models describing the atmosphere and the ocean, and elsewhere. Simulation results concerning a 'toy' problem based on an equivalent barotropic vorticity equation on a latitude circle are described, and feasible methods for potential implementation in operational systems are discussed.

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See URL `ftp://ftp.stat.wisc.edu/pub/wahba/talks/sydney.96` for related work.

2. Oral Presentation

3. This paper is invited for the IMS Session on 'Curve Estimation'