A New Sampling Approach in Particle Filtering

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A hybrid deterministic-stochastic (HSD) sampling approach for particle filters is studied in the context of the Lorenz96 model. HSD sampling uses prior knowledge of model dynamics and current and future observations to reduce the notorious sampling inefficiency of particle filters when applied to spatial models. Results from Observation System Simulation Experiments with a HSD particle filter will be shown and improvements in sampling efficiency and aspects of forecast skill will be discussed.