Geophysical Research Abstracts, Vol. 7, 09136, 2005
SRef-ID: 1607-7962/gra/EGU05-A-09136

Sequential Important Resampling filtering in ecosystem modelling

S. N. Losa , G. A. Kivman, J. Schroeter

Alfred Wegener Institute for Polar and Marine Research, P.O.Box 120161, 27515 Bremerhaven (sloza@awi-bremerhaven.de)

Sequential Important Resampling filter (SIRF) is applied for assimilating time-series data into an ecosystem model. Advantage of this Monte-Carlo based data assimilation approach for combined state and parameter estimation in ecosystem modelling has been already demonstrated in previous studies. Some aspects of the SIRF implementation for the highly non-linear system, however, still remain to be worked out. The filter is based on ensemble methods. and is known to suffer from degeneration of the ensemble if either the system noise does not provide sufficient spreading of states which are resampled several times or the ensemble badly approximates the true prior distribution (the distance between the best member and the true state is too big). This problem is even more pronounced in the case of simultaneous state-parameter estimation where regenerating the number of samples in the parameter space is needed. We will report on the optimization of model noise and resampling strategies.