Geophysical Research Abstracts, Vol. 8, 03788, 2006
SRef-ID: 1607-7962/gra/EGU06-A-03788

Assimilation of sea surface observation with coupled model via ensemble Kalman filter: System design with graphical modeling

G. Ueno (1), T, Higuchi (1), T. Kagimoto (2) and N. Hirose (3)

(1) The Institute of Statistical Mathematics / JST CREST, (2) Frontier Research Center for Global Change / JAMSTEC, (3) Research Institute for Applied Mechanics, Kyushu University

We apply the ensemble Kalman filter (EnKF) to the coupled ocean-atmosphere model by Zebiak and Cane (ZC model, Zebiak and Cane [1987]) in order to assimilate the TOPEX/Poseidon sea surface height (SSH) observation. Since the ZC model includes several nonlinear processes, it is impossible to use the standard Kalman filter and smoother algorithms. We therefore employ the EnKF in which the Kalman gain is approximately estimated by many realizations of the state vector. Also, since the ZC model is a feedback system, it is important to design a state space model suitable for the EnKF. We propose a method for designing a state space model on the basis of a graphical representation of the ZC model.