



Improved methods for bias correction with ensemble filters in seasonal forecast systems

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Different approaches for bias estimation in the assimilation schemes of seasonal forecast systems are investigated. In particular, the Ensemble Kalman Filter is used to correct for systematic offsets in boundary conditions for the ocean model component. This approach has several advantages over current methods which estimate a model state bias to balance the incorrect surface forcing. Twin experiments are performed in which simulated observations of temperature and sea level are assimilated in the tropical Pacific section of an ocean general circulation model. It is shown that a prescribed bias in the surface wind stress forcing can be corrected, thereby reducing spurious circulations and maintaining dynamical balances in the model. A new approach for assimilating sea level observations is proposed which is shown to produce smaller analysis errors than traditional approaches.