



POPDART: An Ensemble Data Assimilation System for the Ocean Component of CESM

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At the National Center for Atmospheric Research, a 48-member ensemble adjustment Kalman filter (EAKF) has been used to assimilate daily subsurface temperature and salinity data into the POP2 $1^{\circ}\times 1^{\circ}$ global ocean model from 1998-2005. The new ocean assimilation system dovetails with an existing EAKF system for the CAM4 $2^{\circ}\times 2^{\circ}$ atmospheric model, using unique members of the CAM posterior ensemble to force each POP2 ensemble member. We will show results from this initial effort, highlighting both successes and challenges that emerged in this process. We will also show results from more recent experiments aimed at improving our ocean state estimates through changes to the filter. Special focus will be placed on improved estimates of representativeness error, vertical covariance localization and artificial inflation.