



Model and observation bias correction in altimeter ocean data assimilation in FOAM

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We implement a combined online model and observation bias correction system in the UK Met Office FOAM OI ocean data assimilation system. The observation bias scheme is designed to estimate the error in the mean dynamic topography that must be used for altimeter data assimilation. The mean dynamic topography field is added to the altimeter data supplied as sea-level anomalies giving the absolute sea surface height. The bias scheme separately estimates the remaining model bias in the model sea surface height field. The final unbiased estimate of the absolute dynamic topography is assimilated into the FOAM model by adjusting the subsurface density field using the Cooper and Haines scheme. Various diagnostics including the observation minus background statistics show that both model and observation bias correction schemes improve the assimilation results. Combining the schemes provides better results than either alone.

The FOAM system is now transitioning from the Unified Model ocean to a 0.25 degree global NEMO system using the same OI assimilation scheme. Preliminary results will be presented using the bias correction scheme with this new system.