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Assimilation of dynamic topography in a global ocean model

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Absolute dynamic topography, i.e. the difference between time dependent multi-mission altimetric sea surface height and one of the most recent GOCE and GRACE based geoids, is assimilated in a global ocean general circulation model. To this end we apply an ensemble based Kalman technique, the "Error Subspace Transform Kalman Filter" (ESTKF).

Here we present an update of our work. First of all the geoid is improved over previous versions. The ocean model now includes better dynamics and full sea-ice ocean interactions and more realistic surface forcing. Finally the assimilation method is augmented by a fixed lag smoother technique. This smoother allows to significantly improve the model performance, most strikingly in the first adjustment phase.