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## Deciphering forcing mechanisms for dynamic sea level variations off the northeast US coast

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Regional sea level change is strongly societal relevant. The knowledge about the forcing mechanisms for contemporary regional sea level variation is important to the evaluation of climate models and the fidelity of projected sea level changes using these models. Dynamic sea level variation off the northeast US coast has been a subject of significant interest of late. However, there is inadequate understanding about the forcing mechanisms and the underlying oceanic processes. The Estimating the Circulation and Climate of the Ocean (ECCO) state estimate reproduced well the observed interannual-to-decadal variation of dynamic sea level in the region during the satellite altimeter era. Here we use the ECCO adjoint sensitivity tools to quantify the relative contributions of local and remote winds, surface heat flux, and surface freshwater flux on dynamic sea level variation in this region. We further characterize the salient oceanic processes associated with different surface forcings on different time scales.