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Title: Eulerian and Lagrangian Parameterization of the Oceanic Mixed Layer using Large Eddy Simulation and MPAS-Ocean

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Eulerian and Lagrangian Parameterization of the Oceanic Mixed Layer using Large Eddy Simulation and MPAS-Ocean

(w17_mpasles)

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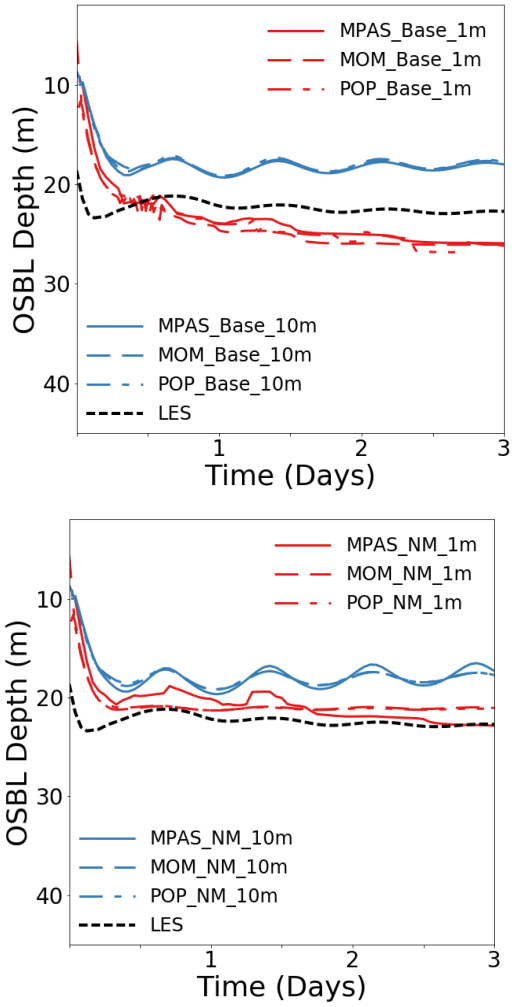
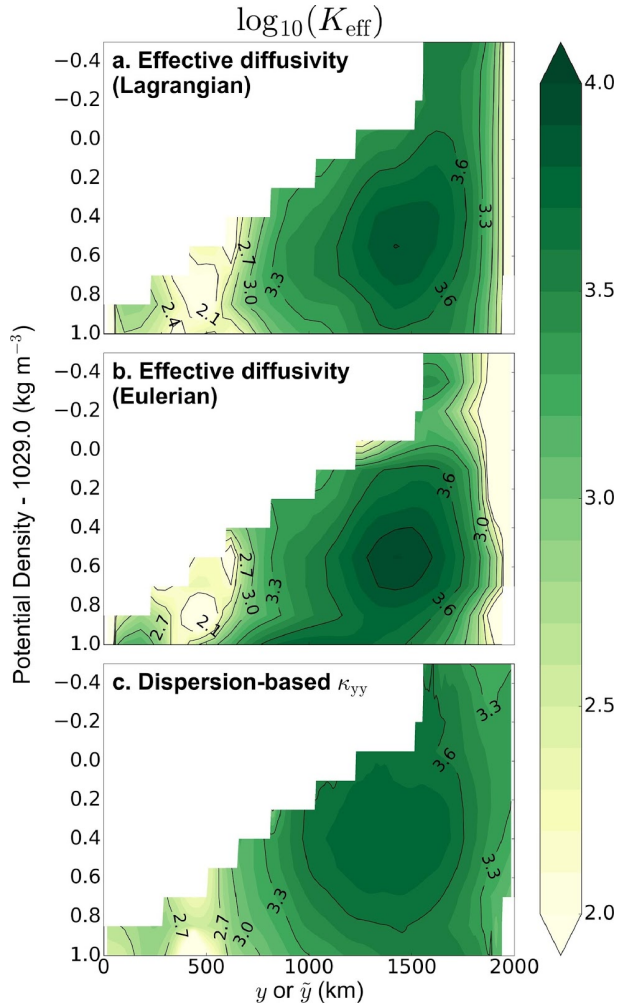


- We have conducted a suite of Large Eddy Simulation (LES) to form the basis of a multi-model comparison (left). The results have led to proposed model improvements.
- We have verified that Eulerian-Lagrangian effective diffusivity estimates of mesoscale mixing are consistent with traditional particle statistics metrics (right).
- LES and Lagrangian particles will be utilized to better represent the movement of water into and out of the mixed layer.



Top - Intercomparison of the traditional configuration of ocean mixed layer model. Bottom – Our newly proposed configuration.

Top – Different estimates of mesoscale eddy diffusivity computed using our high performance Lagrangian particle tracking capability.