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The Gravity Current Entrainment Climate Process Team: a progress report

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The Gravity Current Entrainment Climate Process Team was established by US CLIVAR to foster the collaboration between climate model developers and those conducting observational, numerical and laboratory process studies, in order to improve the representation of overflows in climate models. Now mid-way through the third year of this pilot program, we will highlight our most significant accomplishments. These include the compilation of a comparison table of observations of the major overflows, implementation of the Price and Yang Marginal Sea Boundary Condition into the NCAR climate model CCSM, the calibration of Ellison-Turner-type entrainment parameterizations implemented in layered models against nonhydrostatic overflow simulations, the development of a parameterization of mixing in the frictional bottom boundary layer, and the development of a new parameterization of shear-driven mixing suitable for global application in both layered and height-coordinate models. All the model developments are being evaluated by comparison with observations and high-resolution numerical simulations, and evaluations of their impact on global climate simulations are underway.