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The Gravity Current Entrainment Climate Process Team: an Overview

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While the entrainment, mixing and descent of dense oceanic overflows are critical processes in setting the properties of the deep and abyssal waters of the ocean, coarse resolution ocean models such as those used for climate have considerable difficulties in representing these processes properly. For z-coordinate models at coarse resolution too much spurious mixing occurs during the descent; for isopycnal models (and z-coordinate models at intermediate resolution) the correct amount of mixing needs to be included through explicit parameterizations. In order to improve the climate model representation of overflows a Climate Process Team (CPT) has been established, comprising observationalists, process modelers and climate model developers, which aims to speed the transfer of knowledge gleaned from observations and process studies into usable parameterization schemes for climate models. Here we give an overview of the activities and achievements of this CPT to date, including the development of a bottom-friction driven mixing scheme, improved shear-driven mixing schemes, and a more thorough understanding of model sensitivities.