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Regional Simulations of the Faroe Bank Channel Overflow

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As part of the Climate Process Team (CPT) on Gravity Current Entrainment a regional model of the Faroe Bank Channel overflow has been developed using the MITgcm. The MITgcm is a z-level model like most models commonly used for large scale climate simulations. All of these models are limited in their ability to represent overflows correctly and it is the goal of the CPT to develop and implement improved numerical schemes dealing with overflow entrainment.

With this goal in mind we examine the sensitivity of the simulated Faroe Bank Channel overflow characteristics to horizontal and vertical resolution as well as model parameters such as viscosity and different mixing schemes. We compare the simulations to results from recent observations in the region in order to identify the most apparent shortcomings of the model in representing the overflow.

In conclusion we discuss ongoing investigations into possible strategies for improving the way in which z-level models, such as the MITgcm, handle entrainment.