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Influence of abyssal diapycnal mixing on abyssal stratification and rate of circulation

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Recent studies have suggested that the abyssal ocean stratification is set by winds in the Southern Ocean, while the rate of the abyssal overturning circulation is driven by abyssal mixing. Using a simple theoretical model and idealized numerical simulations, we show that the vertical decay of mixing away from bottom topography exerts a strong constraint onto the abyssal stratification and overturning rate. Hence changes in mixing are as important as changes in Southern Ocean winds in setting the ocean stratification and circulation in different climates.