

Supporting Information for “Enhanced upwelling of Antarctic Bottom Water by topographic interaction of water mass interfaces”

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Additional Supporting Information (Files uploaded separately)

1. Movies S1-S3

Introduction

Movies corresponding to selected panels of figures 3, 5, and 6 in the main text are provided and captioned here to further illustrate the complex dynamics of water masses and flow-topography interaction processes in the Drake Passage. The movies are created using model output from the Drake Passage model described fully in Appendix A of the main text.

Movie S1. 30 day animation of daily average fields corresponding to panels a,b,e,f,g,h of figure 3. (a,b) Neutral density, (c,d) salinity, and (g,h) stratification N^2 at (left column)

3600 m depth and (right column) -58° N. White and blue dashed lines show correspondence between columns.

Movie S2. 10 day animation of hourly average fields corresponding to panels a,b,c,d of figure 5. (a) Richardson number, (b) vertical diffusivity, (c) stratification, (d) squared vertical shear of horizontal velocities and (e) salinity, all at -57° N.

Movie S3. 10 day animation of hourly average fields corresponding to the top three and bottom rows of figure 6. (a) Salinity at 3600 m depth, with white dashed line indicating the section shown in the remaining panels at 298.6° E. (b) Salinity, (c) stratification and (d) vertical diffusivity.