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The origin of Intermediate and Subpolar Mode Waters crossing the Atlantic equator in OCCAM

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The origin of the intermediate waters that cross the equatorial Atlantic as part of the return flow for North Atlantic Deep Water was studied in a high resolution global ocean model using a Lagrangian particle following technique. Most of these waters are subducted in the southeast Indian Ocean. Less than twenty percent comes directly from Drake Passage without looping into the Indian Ocean; the majority being provided by Agulhas leakage. Most of the intermediate waters that subduct in the South Atlantic do not follow the South Atlantic/Indian Ocean supergyre, but remain within the Antarctic Circumpolar Current, and gradually transform into Circumpolar Deep Water by diapycnal mixing.