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Can variations in the Atlantic Meridional Overturning Circulation be measured using only western boundary pressure measurements?

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We demonstrate using diagnostics from an eddy-permitting global ocean model that measurements of bottom pressure on the continental slope at the western boundary of the North Atlantic are sufficient to capture more than 90% of the interannual variance in the overturning circulation, with a standard error of 0.3 sverdrups. Dynamical reasons are given to explain why boundary pressure is such an effective diagnostic, and why it is less likely to be affected by small-scale 'red noise' due to eddies than is the case for measurements involving points in the basin interior. The strong spatial coherence of bottom pressure that this implies is illustrated using in-situ measurements across the North Atlantic.