

# Antarctic Bottom Water Flow through the Hunter Channel

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## ABSTRACT

The Rio Grande Rise acts as a natural barrier for the equatorward flow of Antarctic Bottom Water in the subtropical South Atlantic. In addition to the Vema Channel, the Hunter Channel cuts through this obstacle and offers a separate route for bottom water import into the southern Brazil Basin. On the occasion of the Deep Basin Experiment, a component of the World Ocean Circulation Experiment (WOCE), the expected deep flow through the Hunter Channel was directly observed for the first time by an array of moored current meters and thermistor chains from December 1992 to May 1994. Main results are: (i) The Hunter Channel is, in fact, a conduit for bottom water flow into the Brazil Basin. Our new mean transport from moored current meters ( $2.92 \pm 1.24 \times 10^6 \text{ m}^3 \text{ s}^{-1}$ ) is significantly higher than earlier estimates which were based on geostrophic calculations. (ii) During the WOCE observational period a tendency towards increased bottom water temperatures was observed. This observation from the Hunter Channel is consistent with findings from the Vema Channel. (iii) The overflow through the Hunter Channel is highly variable and puts in perspective earlier synoptic geostrophic transport estimates.