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Coherency Between Volume Transport in the Antarctic Circumpolar Current and Southern Hemisphere Winds

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Previous studies have suggested that ocean bottom pressure (OBP) can be used to measure the transport variability of the Antarctic Circumpolar Current (ACC). The OBP observations from the Gravity Recovery and Climate Experiment (GRACE) will be used to calculate transport along the 150°E longitude choke point, between Antarctica and Australia. We will examine whether zonally averaged wind stress, wind stress curl, or local zonal winds are more coherent with zonal mass transport variability. Preliminary studies suggest that seasonal variation in transport across 150°E is more correlated with winds along and north of the northern front of the ACC: the Sub Tropical front (STF). It also appears that interannual variations in transport along 150°E are related to wind variations south of the STF and centered south of the Sub Antarctic Front (SAF). We have observed a strong anti-correlation across the SAF, in the Indian Ocean, which suggests wind stress curl may also be responsible for transport variations. Preliminary results will be presented.