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MONITORING THE TRANSPORT OF THE ANTARCTIC CIRCUMPOLAR CURRENT, SOUTH OF AFRICA.

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The Global Thermohaline Circulation (GTC) is the primary mechanism by which the transport of heat and salt, from the tropics to the higher latitudes, takes place. The Antarctic Circumpolar Current (ACC) is by far the strongest and most extensive current which forms part of the GTC.

A major aim of the GoodHope multi-national program is to measure and monitor the transport of the ACC between Africa and Antarctica in order to better understand the effectiveness this current has on maintaining the global ocean's heat and salt balance.

We analyse XBT and CTD data obtained from five repeat hydrographic transects of the GoodHope monitoring line. Surface dynamic height (referenced to 2500 m) is derived from XBT data using an empirical relationship found between upper ocean temperature and surface dynamic height calculated from CTD data. This hydrographic dynamic height data shows good comparison with the mean absolute sea level height computed from altimetry, in situ measurements and a geiod model. A second empirical relationship between surface dynamic height and cumulative transport has been defined allowing us to monitor a continuous time series of baroclinic transport, derived from altimeter sea surface height. Transports derived this way, allow us to monitor the variability of the ACC's flow on new temporal and spatial scales than can be done using hydrographic data, which is obtained primarily during the austral summer.