



Malvinas current transport: 13-year-long time series

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The Malvinas current, a branch of the Antarctic Circumpolar Current (ACC), enters the Argentine Basin after Drake Passage and takes a northward trajectory, following the Patagonian shelf break, until it reaches the Brazil current offshore Rio de La Plata estuary. The Malvinas current is the main conduit of Pacific water into the Atlantic (cold route of the thermohaline circulation).

Two data sets of current meter measurements have been collected in the northern part of the Malvinas current, at 40°S-41°S near its merger with the Brazil current: the first one during the World Ocean Circulation Experiment (WOCE) from December 1993 to June 1995 and the second one during CLIVAR from December 2001 to February 2003.

With the first data set, it was shown that the TOPEX/Poseidon altimeter could be used to sensitively monitor the flow in the upper 1500m when combined with the statistical information on the vertical structure of the current provided by the current meter measurements. The seasonal and intra-seasonal variability of the current was dominated by 50-80 days period and semi-annual with very little energy at the annual period.

We compare the two in situ data sets and construct a 13-year-long transport time series using altimetric data (1992-2006). Interannual variability is important. A change in the spectral content occurs in 1999-2000 with the apparition of a strong annual cycle. This change corresponds to changes in the winds both in the southeast pacific and in northern Drake Passage.