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Transport estimations from two LADCP surveys through Drake Passage in 2006

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In January/February 2006, two CTD-LADCP full-depth high resolution sections were performed in the Drake Passage (DP) within 3 weeks, following the ground track 104 of Jason satellite on board of the R/V Polarstern. Two LADCPs were mounted on the CTD rosette and measured with a high quality horizontal velocities from surface to bottom at each CTD station, providing an unprecedented data set in the DP. LADCP velocities were constrained at the surface to VM-ADCP velocities and to bottom-track velocities. Geostrophic velocities computed from the CTD data were referenced to LADCP velocities. The velocity structure of the ACC in the DP and its evolution within 3 weeks are presented. The total transport of the two crossings is estimated from the LADCP velocities and from the adjusted geostrophic velocities. The high quality of the data gives a good precision in the transport estimates and the repeated section offers two independent transport estimates. The evolution of baroclinic transports from 1975 to 2006 is presented. Total transport estimations are compared to existing results, in particular the ISOS (International Southern Ocean Study) data, from which the canonical value of 134 Sv has been estimated. The contributions of the three ACC fronts to the total transport and their changes within 3 weeks are then discussed. If time permits, these estimations will be completed with transport estimations from data collected in 2005, 2008 and 2009 along the same transect.