



Four year transport and pathway time series of the subpolar gyre inferred by integral methods

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The subpolar gyre of the North Atlantic Ocean is a crucial component for the climate relevant oceanic circulation. Warm and saline water from the subtropics enter the subpolar and polar regions, and subsequently return as the deep and cold limb of the Atlantic Meridional Overturning Circulation (AMOC). Model simulations hint to a relation between deep water formation, the strength of the subpolar gyre and the intensity of the AMOC.

To measure the variability of the North Atlantic Current (NAC) and thus the strength of the subpolar gyre, an array of four inverted echo sounders with bottom pressure sensors (PIES) was deployed along the Mid Atlantic Ridge between 47° and 53°N in August 2006. The location of the PIES allows the separation of the main NAC pathways through the fracture zones. The data were retrieved by acoustic telemetry in August 2008, November 2009 and August 2010.

The variability, periodicity and pathways of the transport time series will be discussed and compared with satellite altimetry data.