



## **Summer mean full depth circulation in North Atlantic Ocean along 59.5 N**

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The large scale oceanic circulation in the North Atlantic is an important part of the climate system. Warm saline upper-ocean waters derived in subtropics release heat into the atmosphere while moving northward as North Atlantic Current and by mixing with colder fresher Arctic waters sink in the subpolar basins therefore originating reverse equatorward flow of cold fresh water. This mechanism, known as Atlantic Meridional Overturning Circulation (MOC) is of fundamental importance in the meridional heat transport. Using data from yearly direct hydrographic measurements at 59.5 N with satellite altimetry data in the period 2009-2015 a mean state of the full-depth summer circulation in the region is estimated. Zonal distribution of the 2009-2015 mean summer velocities across the 59.5 N is obtained using four different data sets from (1) pair of WS 300 kHz LADCPs measurements, (2) ship mounted TRDI OS 38 kHz ADCP measurements, (3) AVISO altimetry data (surface absolute geostrophic velocities), and (4) geostrophic velocities data calculated using CTD measurements. By combining those data mean absolute transport is estimated. Results are compared and analyzed confirming and elaborating previous research. Also assessment of the errors associated with full-depth ADCP profiles is settled. This evaluation allows arguing about certainty of collected data and can be used to improve accuracy of circulation rating.