

Observed variability of AMOC transport components at 11°S

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The Atlantic meridional overturning circulation (AMOC) is a key feature of the oceanic circulation and has a big impact on regional weather and global climate. As the characteristics of the northward return flow of the AMOC crossing the equator are crucial for deep water formation at high latitudes in the North Atlantic, the AMOC variability in the South Atlantic is of particular interest. Here, we present observations of several components of the upper branch of the AMOC at 11°S taken from the Tropical Atlantic Circulation and Overturning at 11°S (TRACOS) array. We focus on the transport time series and seasonal to interannual variability of the North Brazil Undercurrent at the western boundary, the Angola Current at the eastern boundary and the upper layer AMOC transport composed of the geostrophic interior and the Ekman transports. The two boundary currents are derived from 10 years of direct moored current measurements. For the geostrophic interior transport, transport anomalies are derived from 10 years of bottom pressure measurements at the eastern and western continental margin at 300 m and 500 m depth and from sea level anomaly data. In all three analysed time series, no long-term trend is visible, and seasonal to interannual variability dominates. Water mass characteristics of the NBUC show a salinification in the central water range.

Hauptautor: HANS, Anna (GEOMAR - FB1 - Physikalische Ozeanographie)

Co-Autoren: HUMMELS, Rebecca (FB1 - Physikalische Ozeanographie); BRANDT, Peter (GEOMAR Helmholtz Centre for Ocean Research Kiel); IMBOL, Rodrigue (GEOMAR)

Vortragende(r): HANS, Anna (GEOMAR - FB1 - Physikalische Ozeanographie)

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