



Meridional Overturning circulation at 26N and the North Atlantic heat Content (MONACO)

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The main goal of MONACO is to understand the links between the meridional overturning circulation (MOC) and the meridional heat transport (MHT) from the RAPID-WATCH observing system, and the subannual to interannual variability of oceanic heat content (OHC) inferred from Argo floats and sea surface temperatures (SSTs) in the North Atlantic. We have calculated the MHT variability in the North Atlantic for the 1999 to 2009 period, and the MOC observations are available from April 2004 to April 2008. The largest OHC signal is the seasonal cycle. Its amplitude and phase is similar to the seasonal heat uptake and release through the air-sea heat fluxes. However, North Atlantic MHT changes and air-sea fluxes can differ by more than 1PW (1015W) for periods extending over several months, suggesting that MHT fluctuations may leave a sizable imprint on the OHC. Lag correlations between deseasoned OHC and MOC variability suggest that the MOC is leading North Atlantic OHC changes by about 8 months. Similarly, we find that MOC leads the development of a tripolar SST pattern in the North Atlantic by 6 months. However, since these correlations are based on the short April 2004 and April 2008 period, and it is not clear yet whether the observed MOC – OHC, and MOC - SST links are robust.