DECADAL VARIABILITY IN THE DEEP BRANCH OF THE ATLANTIC MERIDIONAL OVERTURNING CIRCULATION OBSERVED AT 16°N

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Task Team 1: AMOC Observing System Implementation and Evaluation

The NOAA-funded MOVE project (Meridional Overturning Variability Experiment) has been observing the deep southward flow of the North Atlantic Deep Water at 16°N for now 13 years, using end-point "geostrophic" moorings and bottom pressure sensors (PIES). The derived transport time series starts to show decadal variability, with a weakening in the first 7-9 years, and a strengthening in the approximately last 4 years. This suggests the presence of natural MOC fluctuations on these timescales.

We will analyze the water masses and zonal locations at which these signals are found at 16°N, and compare those to observations of water mass changes in and near the Labrador Sea. For example the weakening of the transports is consistent with reduced water mass formation activity since the mid-nineties. It will also be shown to what extent the long-term variability agrees with numerical model simulations under thermohaline forcing. Further, comparisons with data from the UK and US programs at 26°N (RAPID MOCHA, Florida Strait) will be presented.