



An operational array for monitoring the Atlantic meridional overturning circulation at 26°N

D. Rayner (1), **T. Kanzow** (1), S. Cunningham (1), H. Bryden (1), M. Baringer (3), W. Johns (2), J. Marotzke (4), J. Hirschi (1), L. Beal (2), C. Meinen (3)

(1) National Oceanography Centre, Southampton; (2) University of Miami, Rosenstiel School of Marine and Atmospheric Sciences; (3) NOAA-Atlantic Oceanographic and Meteorological Laboratory; (4) Max Planck Institute for Meteorology

The first objective of the RAPID programme is to establish a pre-operational prototype system to continuously observe the strength and structure of the Atlantic meridional overturning circulation (MOC). Observing the Atlantic MOC is the fundamental observational requirement of a programme to assess the role of the Atlantic thermohaline circulation (THC) in climate. The Rapid-MOC array at 26.5°N incorporates observations from pre-existing and new systems to estimate the complete MOC signal. Components include: 1. Gulf Stream transport through Florida Strait by cable and repeat direct velocity measurements; 2. Ekman transports by satellite scatterometer; 3. deep western boundary currents by direct velocity measurements; 4. the basin wide interior baroclinic circulation from moorings measuring vertical profiles of density at the boundaries and on either side of the Mid-Atlantic Ridge and; 5. barotropic fluctuations using bottom pressure recorders. The array became operational in late March 2004 and is expected to continue until at least 2014. We show that the zonally integrated meridional flow tends to conserve mass, with the fluctuations of the different transport components largely compensating at periods longer than 10 days. We take this as experimental confirmation that the Rapid array is measuring the MOC.