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Variability of the Atlantic Meridional Overturning Circulation in the subtropical Atlantic and the design of the RAPID 26°N observing array

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The time series of the Atlantic Meridional Overturning Circulation (AMOC) at 26°N has been extended to December 2020 and is now almost 17 years long. During the period from 2004 to 2008 the AMOC was about 2.5 Sv stronger than in the following years. Since then, there has been significant interannual variability, but the AMOC has remained relatively weak compared with the first four years of observations. The design of the array was changed in 2020 so that continuous measurements are no longer made over the mid-Atlantic Ridge and in the deep eastern basin. Here, the extended time series is presented and the impact of the design change on the accuracy of the RAPID timeseries is examined. Other possible design changes are considered too. It is found that, although the mid-Atlantic ridge measurements have been important in determining the mean structure of the overturning streamfunction, the impact upon the variability of the streamfunction maximum is small. It is hoped that these changes will enable the measurement of the AMOC at 26°N to be sustained in the future.

Topic

Future AMOC observing –outlining a roadmap

Author: SMEED, David

Co-authors: MOAT, Ben (National Oceanography Centre, Southampton, UK); Mr RAYNER, Darren (National Oceanography Centre, UK); Dr VOLKOV, Denis (Atlantic Oceanographic and Meteorological Laboratory, NOAA, Miami, USA); FRAJKA-WILLIAMS, Eleanor (Universität Hamburg); Dr SMITH, Ryan (Atlantic Oceanographic and Meteorological Laboratory, NOAA, Miami, USA); ELIPOT, Shane (University of Miami); JOHNS, William (Rosenstiel School of Marine, Atmospheric, and Earth Science/University of Miami)

Presenter: SMEED, David

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