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A new index for the Atlantic Meridional Overturning Circulation at 26N

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The Atlantic Meridional Overturning Circulation (AMOC) has received considerable attention, motivated by its major role in the global climate system. Observations of AMOC strength at 26N made by RAPID-WATCH, provide our best current estimate of the state of the AMOC. The period 2004-2011 when RAPID AMOC is available is too short to assess the decadal variability of the AMOC. Here, we de

fine a new AMOC index at 26N that combines the Florida Strait transport and the southward geostrophic wind-driven transport. This index is expected to reflect variations in the AMOC at interannual / decadal time scales. This estimate of the surface branch of the AMOC can be constructed as long as reliable measurements are available for the Gulf Stream and wind stress. To test the reliability of the index on interannual and longer timescales two different NEMO simulations are used: a forced and a coupled simulation. Using these simulations the index captures a substantial fraction of the AMOC variability and is in good agreement with the AMOC transport at 26N both on interannual and decadal timescales. No signi

cant decadal trend is found in any of these two simulations. These results indicate that it might be possible to extend the observation-based RAPID AMOC index at 26N back to the 1980s.