



Can sea surface height be used to estimate oceanic transport variability?

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The relation between the sea surface height (η) and the meridional transport across a zonal section at 26.5°N in the North Atlantic is studied by using an ECCO2 simulation results (<http://ecco2.jpl.nasa.gov/products>). It is shown that the correlation between η and transport can be substantially increased if a corrected η is used. The correction consist in removing the steric height contribution from the seasonal thermocline. The latter explains a substantial part of variability, but is irrelevant dynamically. It is also found that the steric height variability correlates well with the transport variability after the removal of seasonal thermocline contribution. Similar agreement (with correlation coefficient of 0.63 for the full signal and 0.89 for the mean seasonal cycle) is found between the variability in the meridional transport and steric height based on observations from the U.K. Natural Environment Research Council Rapid Climate Change (RAPID) project.