

## **On the impact of the AMOC on sea level rise: new evidence that a slowdown of the Gulf Stream is responsible for accelerating sea level rise along the U.S. mid-Atlantic coast**

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Climate models project that the Atlantic Meridional Overturning Circulation (AMOC) will weaken over the next century and recent studies indicate that Sea level Rise (SLR) along the mid-Atlantic coast is accelerating, but are these two findings related? and if so, does this mean that the AMOC has already started to slow down?. Empirical Mode Decomposition (EMD) analyses of satellite altimetry, North Atlantic Oscillations (NAO), Florida Current transport and tide gauge data, are used to separate interannual and decadal oscillations from long term trends. The results show that the Gulf Stream (GS) has slowed down over the past decade, possibly an early sign that the AMOC is weakening, and consequently, a decreasing sea surface height gradient across the GS is causing an increase in coastal SLR rates north of Cape Hatteras. This SLR acceleration in the mid-Atlantic region may be responsible for an increase in the frequency of flooding in this region. Two important implications of the study are: 1. Sea level records may be used as climate indicators for changes in the AMOC and 2. Projections of regional SLR need to account for the impact of climatic changes in ocean circulation which put some coasts at higher risk than others.