



Is the Atlantic Overturning Circulation approaching a tipping point?

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The Atlantic Meridional Overturning Circulation (AMOC) has a major impact on climate, not just around the northern Atlantic but globally. Paleoclimatic data show that it has been rather unstable in the past, leading to some of the most dramatic and abrupt climate shifts known [1].

These instabilities are due to two different types of tipping points, linked to amplifying feedbacks in the large-scale salt transport and in the convective mixing which drives the flow [2,3]. Of particular concern is the evidence for an ongoing weakening of the AMOC [4,5]: it likely is already at its weakest in a millennium [6].

These tipping points present a major risk of abrupt ocean circulation and climate shifts as we push our planet further out of the stable Holocene climate into uncharted waters. The lecture will discuss the paleoclimatic data, the instability mechanisms, the evidence for an AMOC slowdown and how close we may be to a dangerous tipping point.

References

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