



Is the Atlantic Meridional Overturning Circulation (AMOC) approaching a tipping point?

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The AMOC is one of the well-established tipping elements of the Earth system (Lenton et al. 2008). The basic physics behind its bistability was already understood by Stommel (1961), and paleoclimatic evidence for past abrupt changes in the AMOC has mounted since the seminal work on sediment and ice cores in the 1980s (see Broecker 1987). While we know the AMOC has one or more critical thresholds and there is a risk of abrupt and practically irreversible transitions, it is still controversial

- (i) how far the AMOC is from a threshold,
- (ii) whether the AMOC is already approaching one due to global warming, and
- (iii) how large is the risk of crossing a threshold with further warming.

The lecture will review the current understanding of these issues in the light of a number of recent studies, which have renewed the concern about anthropogenic warming triggering a critical AMOC tipping point.

References

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- Stommel, H. (1961). "Thermohaline convection with two stable regimes of flow." *Tellus* 13: 224-230.