



Towards a traceable model hierarcchy to assess the stability of the MOC

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A number of climate models indicate the possibility that there exist stability thresholds for the Atlantic MOC. However such thresholds have not been widely demonstrated in the most comprehensive climate models (AOGCMs). It is clearly important to establish the existence and position of such thresholds in the comprehensive models, but their computational expense precludes a thorough exploration of their parameter space. We present results from a simple MOC model that can be 'tuned' to results from an ensemble of model runs based on the HadCM3 AOGCM, with different atmospheric parameter settings. The tuning suggests which areas of AOGCM parameter space are likely to result in an MOC that is close to a stability threshold. By establishing the traceability of the simple model results to the AOGCM, we can use the simple model to understand the cionditions under which MOC instability is likely.