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Stability properties of the North Atlantic Ocean Circulation

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We present the Unige/Cadmos* project which aims at studying the stability properties, the mechanisms of fluctuation and the non-linear couplings with the climate systems of the North Atlantic Ocean Circulation (NAOC). We discuss preliminary results obtained by running massively-parallel coupled ocean-atmosphere simulations with the MITgcm code, a numerical model designed for simulating fluid phenomena over a wide range of scales. In particular, we explore the parameter region where the NAOC is close to a bifurcation point, where the ocean circulation jumps abruptly to a new state characterised by little or no heat flux to northern latitudes.
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