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Sensitivity of the Last Glacial Maximum climate and ocean circulation simulated by the IPSL model to their initial states

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The behaviour of the thermohaline circulation at the Last Glacial Maximum (LGM) and its sensitivity to fresh water forcing at mid to high latitudes in the North Atlantic has extensively been studied with Earth system models of Intermediate Complexity (EMICS). There are far less studies based on fully coupled ocean-atmosphere general circulation models. In the present work, we use the IPSL ocean-atmosphere general circulation model in the same version as the one used in the last IPCC exercise. We study two LGM simulations, one starting with an active Atlantic Meridional Overturning Circulation (AMOC), the other starting with a shut down (AMOC). At the time of writing, after more tha 500 years of integration for each run, both circulations are stable. We will investigate the reasons of this stability and examine the climate differences between these two states. These will be compared to the results of a transient run between the 2 states.