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FAMOUS-C - a new earth system model

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FAMOUS is a low resolution, fast version of the HadCM3 coupled atmosphere-ocean general circulation model that runs without flux adjustments. Basing FAMOUS on HadCM3 means its results are directly traceable to a widely used AOGCM, giving confidence in its results. As part of the UK QUEST Earth System Model project, FAMOUS is being improved and expanded to include the terrestrial and marine carbon cycles. It is intended that, amongst other things, FAMOUS-C will be used by a number of QUEST projects to investigate changes in climate and atmospheric composition since the Last Glacial Maximum.

The carbon cycle is represented by the HadOCC NPZD marine carbon cycle model and the MOSES2.2 land scheme. TRIFFID is used to simulate dynamic vegetation. Initial results of the carbon cycle components compare favourably with those of HadCM3, suggesting that the lower horizontal resolution of FAMOUS is not a serious problem. FAMOUS-C can simulate over 100 years of climate per day using 8 processors of a cluster, making both millennial-scale runs and large ensembles feasible. FAMOUS has also been coupled to the GLIMMER ice-sheet model, allowing all the main influences on Quaternary climate to interact fully.