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会場:102

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なぜ大気海洋大循環モデルによる氷期北大西洋海洋循環の再現が難しいのか Why do GCMs sometimes fail to simulate the LGM AMOC

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To understand and reproduce the Atlantic Meridional Overturning Circulation at Last Glacial Maximum (LGM), which is known to be weaker than present day in strength, is important for the validation of models used for future climate projection, although many Coupled Atmosphere Ocean General Circulation Models (AOGCMs) fail to simulate it. Here we analyze multi AOGCMs and also ran several sensitivity experiments using MIROC AOGCM in order to examine the reason of difficulty in simulating the NA AMOC at LGM. We show that (1)the change of AMOC in the models are very much dependent on the Temperature bias in the Southern Ocean (2)The formation of ice sheet and Brine rejection in Southern Ocean is crucial for the weakening of AMOC at LGM. (3)Decrease of Greenhouse Gas (GHG) amount under glacial climate is favorable in weakening the NA AMOC while the growth of Northern hemisphere Ice Sheet strengthens it under a range of GHG level.