Geophysical Research Abstracts
Vol. 12, EGU2010-15446, 2010
EGU General Assembly 2010

Response of monsoon systems to an Heinrich-type of event in the IPSL coupled model

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Paleorecords in regions influenced by monsoon systems show rapid and large amplitude climate variations during the last glacial period. A correlation between the North Atlantic climate perturbations and the tropical climate is seen at different time scales. Here, we study the response of monsoon systems to an Heinrich-type of event, triggering a collapse of the Atlantic Meridional Overturning Circulation (AMOC) under Last Glacial Maximum (LGM) conditions. The coupled simulations show that Indian and African monsoons are significantly weakened as a result of this collapse. The mechanisms underlying the teleconnection between the North Atlantic forcing and monsoons are further investigated using sensitivity experiments. The Sea surface Temperature (SST) variations of different regions are used to force the atmospheric model. The changes of SST in the North Atlantic only are not sufficient to trigger the weakening of the Indian monsoon, the changes in the tropical Atlantic play a crucial role in perturbing the monsoon circulation through the atmospheric bridge.