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The LGM surface climate and atmospheric circulation over East Asia and the North Pacific in the PMIP2 coupled model simulations

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Abstract. The surface conditions and atmospheric circulation over East Asia and the North Pacific during the last glacial maximum have been investigated using outputs from several coupled atmosphere-ocean general circulation model in the PMIP2 database. During the boreal summer, the weakening of the high pressure system over the North Pacific and less precipitation over East Asia are found in most models. The latter can be attributed to reduced moisture transport. During the boreal winter, an intensification of the Aleutian low and southward shift of the westerly jet stream in the upper troposphere are found in most models.

Some of the results in the present study seem to be consistent with the paleoclimatic reconstructions in the previous studies: pollen and lake-status records suggest dry climate over East Asia during the last glacial maximum, and part of the dust record has a signal that the East Asian winter monsoon was more strong and the westerly jet stream in the upper troposphere was further south during the last glacial maximum than at the present day. This result confirms that a coupled atmosphere-ocean general circulation model is a promising tool to understand not only the global climate but also the regional climate in the past.

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