

Preliminary Modelling of the vegetation-climate, wet area and past methane emission by a general circulation model and a dynamical global vegetation model

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Past time series of methane concentration in the atmosphere is reconstructed from ice core. Generation and emission of methane depend on temperature, wetness and amount of soil organic carbon which reflects climate change and vegetation change. Hence past methane information is useful for validation of paleoclimate modelling. In the present study, we predict some typical past climate (mid-Holocene, the Last Glacial Maximum, the Last interglacial and mid-Glacial) by a general circulation model MIROC and corresponding past vegetation by a dynamical global vegetation model LPJ-DGVM. Furthermore, by introducing a formulation based on Cao et al. 1996, we try to predict the distribution of past methane emission and its total global amount.

Keywords: paleoclimate, vegetation, methane