

## Simulation for the Kuroshio in the Last Glacial Maximum

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The Kuroshio Current(KC) that flows south of Japan has an important role to the climate of East Asia and Japan. In modern days, the KC exists stably and contributes to maintenance of warm climate. However, this stable condition is considered to be different in Last Glacial Maximum (LGM) when different environment conditions from the present day were reported. LGM is about 20,000 years ago. During the LGM, the sea surface level was lower than present by about 130m and the westerlies shifted southward. In addition, the heat flux should be also different from present. Therefore, when simulating the KC in LGM, it is necessary to consider the above three factors.

There are already some previous studies about KC flow path in LGM. However, the conclusion from these studies differs from each other. In this study, we investigated the KC flow path and strength in LGM by using a numerical model simulation in which we consider the above three factors related to the KC. With a consideration of three factors and a comparison of the simulation results and the available observation data from paleoceanographic analysis, we want to give a best estimation on the KC path and strength in LGM.

Our simulation indicates that the KC path is greatly different between present day and LGM. Especially it was different in the East China Sea(ECS) and South of Japan. In the ECS, it is suggested that the KC path changed with reduction of sea level. In the area south of Japan, it is suggested that the KC path changes with southward shift of westerlies and the change of heat flux. The strength of KC was weaker in LGM than in present day. This weakening is closely related to the weakening of North Equatorial Current that is probably caused by the change of wind stress curl due to southward shift of westerlies and the reduction of heat input to the sea.

Keywords: Kuroshio, Last Glacial Maximum, Numerical model