



Onset of the Tushima Water entering into the Japan Sea during the Heinrich 1

Jianjun Zou (1,2), Xuefa Shi (1,2), and Aimei Zhu (1)

(1) Key Laboratory of Marine Sedimentology and Environmental Geology, First Institute of Oceanography, State Oceanic Administration (zoujianjun@fio.org.cn), (2) Qingdao National Laboratory for Marine Science and Technology, Function Laboratory for Marine Geology and Environment (zoujianjun@fio.org.cn)

Tsushima Warm Current (TWC) plays a key role in shaping the environment and climate in the Japan Sea and therefore the variations of TWC are largely studied and discussed on various time scales by scientific community. Among them, the state of TWC during the last deglacial period is still debated. In this study, a suit of proxies were measured, including organic carbon $\delta^{13}C$, sediment grain size and alkenone derived SST. All these proxies clearly indicated that the changes occurred abruptly during Heinrich 1, including rapidly increased marine source contribution of total organic matter, strikingly risen silt content and sharply decreased of alkenone-derived SST. All the variations in these proxies indicated the inflow of the Tsushima Water kicked off during the Heinrich 1, which are closely related to the rising eustatic sea level. And what's more, our study supports previous hypothesis that the Japan Sea is a "Japan Lake" during the Last Glacial Maximum because the deepest Tsushima Strait, one of the four straits of the Japan Sea, was fully filled with sediments, which block the inflow of Tsushima Water.

Note: This study was supported by the National Natural Science Foundation of China (Grant No. 41476056, 41206059).