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THE HYDROLOGICAL RESPONSE OF NORTHEASTERN BRAZIL DURING LAST DEGLACIATION

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Paleoclimate proxy and numerical modelling data suggest prominent change in precipitation over lowland tropical South America during last deglaciation. The hydrography of Northeastern Brazil under such change in precipitation, however, remains poorly investigated. Unresolved issues relate to the possible change in sources and amounts of terrigenous input delivered to the continental slope off Northeastern Brazil. Here we analyzed a set of marine sediment cores retrieved from off the Parnaíba River Delta during research cruise MSM20/3 that provide an excellent opportunity to address these issues. Detailed radiocarbon-based age models indicate that the sedimentation rates at our core sites increased significantly from ~ 20 cm/kyr during the Last Glacial Maximum to ~ 70 cm/kyr during Heinrich Stadial 1, and then back to ~ 20 cm/kyr during the Bølling-Allerød. One possibility for this extreme rise in sedimentation rate is the simulated reversal of the North Brazil Current and the supposed input of Amazonian sediment to the continental slope off the Parnaíba River Delta. Here our Nd isotopic data will help to disentangle the different sedimentary sources since the terrigenous supply from the Parnaíba and the Amazon Rivers have considerably different signatures. The $\epsilon_{Nd(10)}$ measurement of modern sediment samples (i.e., soil, river suspended sediment load), to be collected over Northeastern Brazil and already available marine surface and downcore results will greatly contribute to clarify possible change in the terrigenous sources. Our data shed new light into our knowledge of the coupled hydrological process (i.e., fluvial erosion and weathering) over Northeastern Brazil and its relationship with the Atlantic Meridional Oceanic Circulation.