

## Marine Isotope Stage 2 sea-level records deduced from sediment cores in the Bonaparte Gulf and glacial isostatic adjustment model

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Marine Isotope Stage 2 (MIS 2) is the latest glacial period (30,000–15,000 years ago), including the Last Glacial Maximum (LGM) characterized by the maximum of global ice volume. The comparison of various paleoclimatic records with sea-level change derives an understanding of the earth climate system. However, global sea-level change during MIS 2, especially the LGM, is less understood due to its paucity of data and its uncertainty. The Bonaparte Gulf, northwestern Australia, is a suitable region to reconstruct the global sea level change since the Gulf is far from the former ice sheet and tectonically stable. Here we present the new sea-level records from the Bonaparte Gulf and the revision of the global ice volume history during the MIS 2 using marine sediment cores, paleo-tidal model and glacial isostatic adjustment (GIA) model. To reconstruct relative sea level in the Bonaparte Gulf, we employed exceeding 250 radiocarbon dates of carbonates and bulk organic matters from cores with various depths, combined with the two-dimensional tidal model for the evaluation of paleo-tidal effects to the past sea level in the Bonaparte Gulf. We also propose the revised global ice volume history during the MIS 2 based on results from GIA model and the new relative sea-level records for the Bonaparte Gulf.

Keywords: Sea Level, GIA model, MIS2, radiocarbon dating