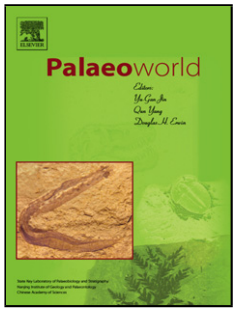

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Authors: Zhao-Liang Ma, Qian-Yu Li, Xin-Yu Liu, Wei Luo, Dao-Jun Zhang, You-Hua Zhu

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Palaeoenvironmental significance of Miocene larger benthic foraminifera from the Xisha Islands, South China Sea

Zhao-Liang Ma [a, b], Qian-Yu Li [c, *], Xin-Yu Liu [d], Wei Luo [d], Dao-Jun Zhang [d], You-Hua Zhu [a, *]

[a] CAS Key Laboratory of Economic Stratigraphy and Palaeogeography, Nanjing Institute of Geology and Palaeontology, Nanjing 210008, China

[b] University of Chinese Academy of Sciences, Beijing 100049, China

[c] State Key Laboratory of Marine Geology, Tongji University, Shanghai 200092, China

[d] Zhanjiang Branch of CNOOC Ltd., Zhanjiang 524057, China

[*] Corresponding authors. Qian-Yu Li, *E-mail address*: qli01@tongji.edu.cn; You-Hua Zhu, *E-mail address*: yhzhu@nigpas.ac.cn.

Abstract

We studied 344 samples from Well XK-1 in Xisha Islands, South China Sea, and identified 66 species of larger benthic foraminifera, providing critical evidence for biostratigraphy and palaeoenvironmental interpretation of the Miocene reef carbonate sequence. Three assemblages are recognized, namely, *Spiroclypeus higginsi–Borelis pygmaeus* Assemblage (Letter Stage Te5, Early Miocene, 1256.28–1180.15 m), *Nephrolepidina–Miogypsina* Assemblage (Tf, Middle Miocene, 1031.10–577.04 m), and *Cycloclypeus–Heterostegina* Assemblage (Tg, Late Miocene, 468.13–380.42 m). On the basis of the palaeoecological preference of the larger foraminifera, we interpret that the Miocene carbonate sequence was deposited mainly in a warm tropical shallow water environment, characterized by five stages of continuous long-term evolution: backreef lagoon to shelf in the Early Miocene, normal to frontal reef in the early Middle Miocene, backreef lagoon to shelf in the later Middle Miocene, normal to frontal reef in the early Late Miocene, and proximal forereef shelf in the later Late