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MIS27-P22 Room:Convention Hall Time:May 24 17:15-18:30

Large benthic foraminiferal assemblages from shelf slope cores of the Great Barrier Reef: IODP EXP. 325

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The Integrated Ocean Drilling Program (IODP) Expedition 325 was conducted in 2010 on tectonically stable continental shelf slopes of the Great Barrier Reef (GBR) to understand sea-level changes, paleoceanographic changes and the history of coral-reef developments since the Last Glacial Maximum. A total of 34 boreholes in four transects were cored in depths ranging from 42 to 167 meters below sea level. Large benthic foraminifers are unique tools to reconstruct the past environmental histories (e.g., Fujita et al., 2010) for reef systems including paleo-water depths, and hence we aim to employ this method for GBR samples to reconstruct sea-level changes and reef development processes. Unconsolidated sediment samples from cores taken in three transects (HYD_01C, HYD_02A and NOG_01B) were used for grain-size and foraminiferal analyses, and multivariate analyses of foraminiferal assemblages were performed. Operculina spp. was common in a gravel fraction; it was particularly abundant in muddy sediments in the lower part of cores from deep shelf slopes. A total of 25 taxa of large benthic foraminifers were identified in a coarse sand fraction. Four foraminiferal assemblages (A, B, C, and D) were delineated by Q-mode cluster analysis and they correspond to distinct sedimentary environments; namely back reefs (assemblage A), fore-reef slopes with either high energy (assemblage B) or low energy condition (assemblage C), and deep shelf slopes (assemblage D). The assemblage A which is dominated by Baculogypsina sp. and Calcarina spp. would be a key to reconstruct past sea levels. The current study is indicative of the potential for reconstructions of paleo-sea-levels using large benthic foraminiferal assemblages.