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Modern benthic foraminifera in subtidal waters of Johor: Implications for holocene sea-level change on the east coast of Peninsular Malaysia (Article)

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Abstract

Far-field regions are locations away from major glaciation centres and can provide the best possible estimates on eustatic **sea-level** changes. As a far-field region of stable Sundaland, **Malaysia** is an ideal location for studying and predicting **Holocene sea-level** changes. However, **modern** analogues for such investigations are limited for many far-fields, including **Malaysia**. We examined the ecological distributions of **modern subtidal benthic foraminifera** on the **east coast** of Johor, **Peninsular Malaysia**. The faunal composition of surface sediment samples (279 species) was dominated by calcareous-hyaline taxa (74.4 ± 10.2%), followed by agglutinated (13.5±7.6%) and calcareous-porcelaneous (12.1 ±5.2%) taxa, with the co-dominance of Asterorotalia pulchella (synonym: Asterorotalia tripinosa), Discorbinella bertheloti, Pseudorotalia indopacifica, Ammonia sp.I and Cavarotalia annectens. Canonical Correspondence Analysis indicated that both water depth and sediment texture influenced the distributions of **subtidal benthic foraminifera**. Agglutinated species such as Textularia pseudosolita, T. aggliitinans, Bigenerina nodosaria and T. foliácea were found **in** middle-shelf environments (depth >20 m), while calcareous genera such as Elphidium, Pararotalia and Ammonia were found **in** the inner-shelf (depth <20 m). Although the Weighted Averaging regression transfer function based on depth revealed modest performance of **foraminifera** (r^2_{jaCk}=0.40) (for which the other factors such as salinity and wave transport could be responsible), the distributions of **subtidal foraminifera** are clearly associated with water depth. At **Johor**, currently observed shifts **in subtidal** foraminiferal species with depth, which are linked to existing sediment types, can serve as base-line data for **sea-level** reconstruction on the **east coast** of **Peninsular Malaysia**.