Study of modern and paleo-lagoon systems in the southwestern Taiwan using benthic foraminiferal assemblage

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Extensive lagoon and inner sea systems have been widely spread in the south western Taiwan since the early Holocene to present day. Enriched natural and historical and dynamic sedimentary environment make it an ideal research region of human-natural interactions in the past. Yet suitable micro-fossil assemblage has not been established in this region. Here we firstly conduct modern seasonally surface sediment collection in fourteen locations around Anpeng, Chiqu lagoon and Zhenwen River mouth regions since winter 2021.

Environmental (temperature, salinity, pH) and sedimentary (total organic carbon and nitrogen and grain size) parameters are compared with rose Bengal persevered living benthic foraminifera assemblage (> 150 μm). For the Holocene core samples, we have processed around 40 levels to check presence of benthic foraminifera in the paleo-lagoon regions. We have recorded: *Alliatina sp.*, *Ammonia sp.*, *Bulimina sp.*, *Cibicidoides sp.*, *Cribroelphidium sp.*, *Elphidium sp.*, *Hanzawaia boueana*, *Hemirotalia sp.*, *Heterolepa sp.*, *Lenticulina sp.*, *Noion sp.*, *Pararotalia sp.*, *Pseudorotalia sp.*, *Quinqueloculina sp.*, *Spiroloculina sp.*. Most of them could also be found in modern surface sediment which suggest the similar environment ever since the early Holocene. We also find very well-preserved planktonic foraminifera: *Globigerinoides conglobatus*, *Globigerinoides ruber*, *Globorotalia crassaformis*, *Globorotalia truncatulinoides*. Either they were brought by strong depositional events and/or once there were transported by warm (coastal) current.

Further study will keep seasonal collections and finish benthic assemblage in the coring samples and potential use of geochemical proxy on certain benthic foraminiferas.

Keywords: Lagoon, Benthic foraminifera

