

## **High-frequency cycles of brachiopod shell beds on subaqueous delta-scale clinoforms (early Pliocene, SE Spain)**

*García Ramos, Diego Antonio (University of Vienna, Department of Palaeontology, Vienna, AUT);  
Zuschin, Martin (University of Vienna, Vienna, AUT)*

During the early Pliocene, subaqueous delta-scale clinoforms developed in the Águilas Basin, in a mixed temperate carbonate-siliciclastic system. Facies distribution is consistent with the infralittoral prograding wedge model. Stacking patterns and bounding surfaces indicate that the clinoforms formed during the highstand and falling sea-level stages of a high rank cycle. Twenty-two prograding clinothems were recognized over a distance of  $\geq 1$  km. Biostratigraphic data indicates a time span shorter than 700 ky for the whole unit (MPI3 biozone of the Mediterranean Pliocene). Cyclic skeletal concentrations and occasional biostromes of suspension feeders (terebratulid brachiopods, modiolid bivalves and adeoniform bryozoan colonies), slightly evolved glauconite and occasional *Glossifungites* ichnofacies formed on the clinoforms during high-frequency pulses of relative sea-level rise. During such stages, increased accommodation space in the topsets of the clinoforms caused a strong reduction of terrigenous input into the foresets and bottomsets, which provided favorable conditions for the development of these suspension feeder paleocommunities. During stillstand stages, however, reduced accommodation space in the topsets eventually resumed progradation in the foresets. In this facies, the abundance of *Ditrupa* tubes indicates frequent siltation events that drove the demise of terebratulid populations and other epifaunal suspension feeders in the bottomset subenvironments. The occurrence of shell beds on the clinoforms suggests that this case study represents lower progradation rates than standard examples where shellbeds bound the clinobedded units at their base and top only. Most importantly, the distribution of biofacies and ichnoassemblage associations contribute significantly to the understanding of the effects of relative sea level fluctuations on the evolution of subaqueous delta-scale clinoform systems.