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Pliocene Depositional Sequences in Wedge-Top Depozones of Apennine Foreland Basin System (Irpinia-Daunia Mts., Southern Italy)

The Irpinia - Daunia Pliocene thrust-top basins are part of a system of wedge-top depozones referred to the Apennine foreland basins system. Two depositional sequences have been recognised, delimited by unconformities of diverse nature. The P.3.a. sequence has a Lower Pliocene age and is 1800 m thick; the P.3.b. sequence has a Middle Pliocene age and is 700 m thick; both are characterised by transgressive basal facies and thick regressive top facies. Sedimentological analyses have permitted to identify alluvial, lagoonal, coastal and shelf marine facies associations. The P.3.a-base and the P.3.b.-top unconformities are related to a tectonic phase, while the separating them unconformity is of eustatic nature. The facies arrangement has put into evidence the relative sea-level change (lowstand) that occurred at the Lower-Middle Pliocene limit in the Irpinia area. The duration of about 400 ky suggests that the depositional sequences recognised in the study area were forced by high-frequency (IV order) cyclicity, recording long eccentricity oscillations, as already recognised in the entire central Mediterranean region. The studied sequences are located in tectonically active small to medium-sized basins characterised by fluvio-turbidite systems. The synsedimentary tectonic activity is also testified by composite progressive angular unconformities, which are recorded in the P.3.a. sequence. But a striking aspect of fluvio-marine depositional systems is the occurrence of cyclic stacking patterns, which are very similar to those referred to sequence-stratigraphic models. The relationships between Davisian-type and high-frequency eustasy-driven cycles of relative sea-level variations in tectonically active settings, as the Irpinia-Daunia Pliocene basins, result very complex.