

THE INTERFERENCE OF KARST EVOLUTION ON THE INTERPRETATION OF DUCTILE AND BRITTLE STRUCTURES AFFECTING YOUNG SEDIMENTS

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In areas where carbonate rocks are overlain by recent cover deposits, as in the studied region of Algarve (Southern Portugal), the study of active structures is complicated by the development of structures of karstic genesis that are similar to those of tectonic origin, eventually leading to wrong geodinamical inferences. In fact the karst evolution in depth may induce different strains on the overlying deposits, expressed as strongly dipping bedding (reaching nearly 90 degrees dips), folds, and fractures, including joints and shear fractures that may be vertical, present normal slip offsets, or, less frequently, reverse slip offsets. These strain patterns are related to distinct (ductile or brittle) behaviours of the cover sediments in response to the progressive dissolution or the sudden fall down (by cave collapsing) of the underlying carbonate basement, and also to the mechanical properties of the sediments, that may be either unconsolidated (dry or wet) or moderately cohesive by compaction. The bending folds produced by the subsidence of the cover deposits present distinct geometry (from nearly cylindrical to basin like) and show more or less intense thinning of their limbs. The fractures generated by this process sole out on the underlying cave walls. These tend to present normal type kinematics, although reverse offsets may be acquired by posterior rotation, or may be inherited from overhanging cave walls. It is proposed that some of these reverse faults are also controlled by the regional compressive tectonic stress and may be interpreted in the regional geodynamical framework.