

Peritethyan Evolution of the Arabian Platform from Late Paleozoic to Recent

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Sedimentary processes on the Arabian platform during Late Carboniferous to Recent times are integrated into the wider geodynamic and paleogeographic framework of the Tethyan southern margin.

Lying disconformably over Early Paleozoic and Proterozoic Shield rocks, the Late Carboniferous to Early Permian continental deposits recorded effects of the Late Paleozoic Gondwanian glaciation. This lowstand period was followed by the Wordian transgressive marine carbonates and evaporites aggrading and retrograding from east to west over the platform. Triassic times began under closed intra-shelf basin conditions. Both eustatic transgression and tectonic subsidence were active in the Late Triassic, resulting in siliciclastic diachronic facies. Tectonic subsidence dominated during the Bajocian and Early Bathonian. Rapid subsidence further accelerated during the Late Callovian, with retrograding deltaic deposits in southern Arabia and a build-up of reef limestone in central Arabia. During the Late Jurassic, until the Kimmeridgian sea-level highstand, sedimentation occurred under a pure eustatic influence. A tectonically active period started at the end of the Jurassic at the platform margins in Oman and Yemen. Continental to shallow-marine conditions prevailed in Arabia during the Early Cretaceous, while outer-shelf deposition occurred on the collapsed platform in Oman. Tilting or doming of the platform started with the Late Cretaceous, when deep-sea conditions are quoted in northern Oman before the Eoalpine nappe emplacement. Tectonic subsidence regime building huge carbonate shelves, changed abruptly at the end of Eocene with the Arabian-Eurasian collision.