

New fieldwork was carried out in the central and eastern Alborz, addressing the sedimentary succession from the Pennsylvanian to the Early Triassic. A regional synthesis is proposed, based on sedimentary analysis and a wide collection of new palaeontological data. The Moscovian Qezelqaleh Formation, deposited in a mixed coastal marine and alluvial setting, is present in a restricted area of the eastern Alborz, transgressing on the Lower Carboniferous Mobarak and Dozdehband formations. The late Gzhelian–early Sakmarian Dorud Group is instead distributed over most of the studied area, being absent only in a narrow belt to the SE. The Dorud Group is typically tripartite, with a terrigenous unit in the lower part (Toyeh Formation), a carbonate intermediate part (Emarat and Ghosnavi formations, the former particularly rich in fusulinids), and a terrigenous upper unit (Shah Zeid Formation), which however seems to be confined to the central Alborz. A major gap in sedimentation occurred before the deposition of the overlying Ruteh Limestone, a thick package of packstone–wackestone interpreted as a carbonate ramp of Middle Permian age (Wordian–Capitanian). The Ruteh Limestone is absent in the eastern part of the range, and everywhere ends with an emersion surface, that may be karstified or covered by a lateritic soil. The Late Permian transgression was directed southwards in the central Alborz, where marine facies (Nesen Formation) are more common. Time-equivalent alluvial fans with marsh intercalations and lateritic soils (Qeshlaq Formation) are present in the east. Towards the end of the Permian most of the Alborz emerged, the marine facies being restricted to a small area on the Caspian side of the central Alborz. There, the Permo-Triassic boundary interval is somewhat similar to the Abadeh–Shahreza belt in central Iran, and contains oolites, flat microbialites and domal stromatolites, forming the base of the Elikah Formation. The P–T boundary is established on the basis of conodonts, small foraminifera and stable isotope data. The development of the lower and middle part of the Elikah Formation, still Early Triassic in age, contains vermicular bioturbated mudstone/wackestone, and anachronistic-facies-like gastropod oolites and flat pebble conglomerates. Three major factors control the sedimentary evolution. The succession is in phase with global sea-level curve in the Moscovian and from the Middle Permian upwards. It is out of phase around the Carboniferous–Permian boundary, when the Dorud Group was deposited during a global lowstand of sealevel. When the global deglaciation started in the Sakmarian, sedimentation stopped in the Alborz and the area emerged. Therefore, there is a consistent geodynamic control. From the Middle Permian upwards, passive margin conditions control the sedimentary evolution of the basin, which had its depocentre(s) to the north. Climate also had a significant role, as the Alborz drifted quickly northwards with other central Iran blocks towards the Turan active margin. It passed from a southern latitude through the aridity belt in the Middle Permian, across the equatorial humid belt in the Late Permian and reached the northern arid tropical belt in the Triassic.