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# Paleoenvironmental reconstruction of the Oligocene-Miocene deposits of the Tethyan Seaway, Qom Formation, Central Iran

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The Cenozoic climate transition from greenhouse to icehouse conditions was associated with major paleogeographic changes in the Tethyan realm. The closure of the Tethyan Seaway and its Iranian gateways during the terminal Paleogene and early Neogene, between approximately 28 and 18 million years, influenced the latitudinal exchange of water masses and energy and is documented in sediment successions of the Qom formation in central Iran. Little is known on the spatial expression and the exact depositional histories of the Qom Formation on orbital time-scales, including a lack of quantitative sea-level reconstructions and studies on the impact of climatic and tectonic changes on marine ecosystems and sedimentation processes. The PhD project focuses on the investigation of lithostratigraphy, biostratigraphy, paleoecology and paleoenvironmental evolution of the Iranian gateways based on late Oligocene to early Miocene foraminiferal faunas and carbonate facies from selected sediment sections of the Qom Basin. The Qom Formation was deposited in the Central Iranian back-arc basin during the Oligocene-Miocene. In this study foraminiferal faunas and carbonate microfacies were studied based on total 191 samples of two section of Qom Formation. One of them is Molkabad section, which is located northwest of Molkabad mountains, southeast of Garmsar. The section mainly consists of limestones, calcareous marls, marls, and gypsum-bearing marls with a total thickness of 760 meters. The Qom Formation at Molkabad section overlies Eocene rocks with an unconformity and consists of the following lithostratigraphic units (from the lower to upper part): Lithothamnium Limestone, Lower Marl Limestone, Bryozoa Limestone, and Upper Marl Group. The Molkabad fault separates the Qom Formation from the overlying Upper Red Formation. The other section is located at Navab anticline in Qom Formation .The section mainly consist of limestone, marl, and gypsum with a total thickness of 318 meters Navab anticline section overlies Eocene rocks with an unconformity. In a novel approach, ecological information from recent faunas of the Persian Gulf will be applied to the assessment of changes in paleo-water depth and paleo-salinity. Based on these data, global glacio-eustatic signals will be separated from regional tectonic events. This information can be used to better assess potential impacts of the closure of the Tethyan Seaway on Cenozoic paleooceanography and paleoclimate.