

Tectonic significance of the Avroman Formation: Confirmation of Glennie et al.'s (1974) Model from Kurdistan Region of Iraq*

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Abstract

Close to Zalm Village in the Avroman Mountains of Northern Kurdistan, a deformed sequence of the *Megalodontaceae*-bearing Upper Triassic limestones crops out. The Triassic section is dramatically folded, and thrusted on the younger Mesozoic Qulqula Formation. The uppermost half of the Avroman Formation is a massive, thick bedded, *Megalodontaceae*-bearing, white to light grey, light yellowish limestone. Complete *Megalodontaceae* and a significant number of *Megalodontaceae* fragments were found, indicative of a subtidal platform or platform edge (e.g. Hauer, 1853; Gümbel, 1862) ([Figure 1](#)). The lower half of this unit comprises a thinner (~10-20 cm), well-bedded, medium grey limestone with small-scale spherical grains, ooids, oncoids or peloids with no macroscopic fossils.

Introduction

Megalodontaceae-bearing platform carbonates occur in the Northern Calcareous Alps, especially in the Hallstatt region (Simony, 1847; Gawlick, 2000; Mandl, 2000), as well as in the Central and Inner Western Carpathians, Southern Alps and Pannonian Basin (Végh-Neubrant, 1960; Fülöp, 1976; Haas, 2004). In our work, the Avroman Formation has been correlated to the Dachstein Formation of the Alpine realm.

Discussion and Results

Two important deformation zones occur in the Avroman area ([Figure 2](#)), where sheared ophiolitic rocks act as detachment plane below the deformed units, indicating that the Avroman Formation was part of an obduction complex that originating as an arc system, in the Tethys Ocean. The ophiolites would have been emplaced at the margin of the Arabian Plate during the Late Cretaceous and is consistent with the model ([Figure 3](#)) proposed by Glennie et al. (1974). The ‘Umar island facies’ model might explain the occurrence of ophiolites and cherts tectonically below the Avroman Formation.

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Figure 1. *Megalodontaceae*-bearing Upper Triassic Avroman Formation, close to Zalm Village.



Figure 2. Tectonic position of the Avroman Formation in Zalm area.

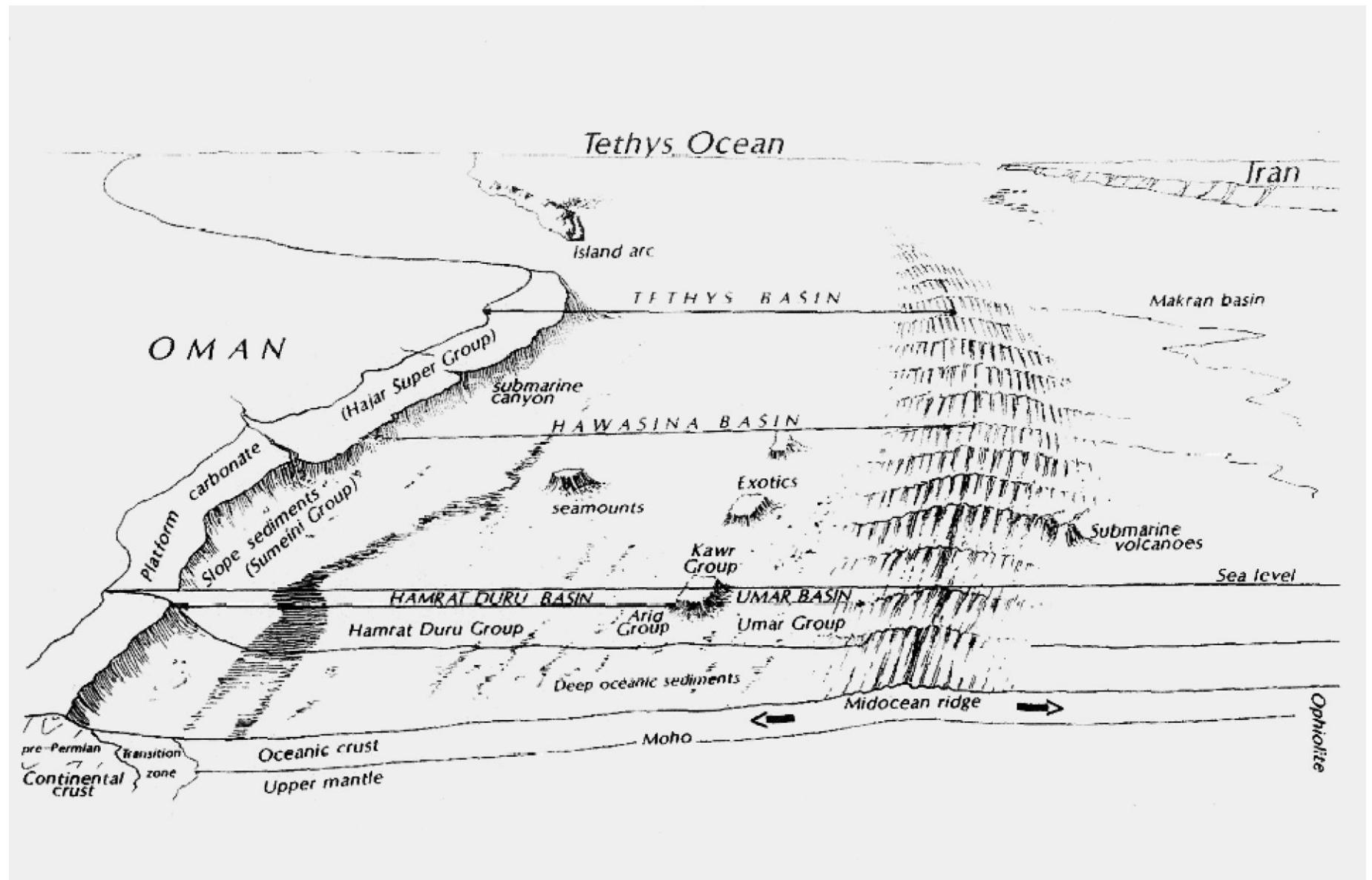


Figure 3. Glennie et al., (1974)'s classic model on the tectonic position of the Umar islands in the Hamrat Duru Basin of the Tethys ocean.