

Alsdorf, D., Barazangi, M., Litak, R., Seber, D., Sawaf, T., and Al-Saad, D., *The intraplate Euphrates fault system - Palmyrides mountain belt junction and relationship to Arabian plate boundary tectonics*. *Annali di Geofisica*, 38, 385-397, 1995.

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**Abstract:**

Based on an extensive, recently released dataset of seismic reflection profiles and well logs, we document and map a northwest-southeast oriented graben of about 20 km width located beneath the Euphrates depression in central Syria. The uppermost Cretaceous age of this graben is contemporaneous with the first phase of inversion and uplift along the adjacent Palmyride mountain belt. We interpret both of these intraplate structures, the Euphrates graben and the Palmyride mountains, to have developed in direct response to a major episode of convergence and continental collision that started in the uppermost Cretaceous time along the nearby Arabian plate boundaries, i.e., the Bitlis and Zagros sutures. Kinematic considerations suggest that the Euphrates graben formed as a tear in the Arabian crust. During the Cenozoic, the intense mountain building processes along the Palmyrides contrast with the persistent broad depression along the Euphrates and most of eastern Syria. We map a series of strike-slip faults that separate the Palmyrides from the Euphrates and appear to decouple these adjacent structures. The broad depression may be related to the Mesopotamian foredeep that developed in response to the nearby Zagros continental collision zone.

Figure 7.

