



## **The Syrian Arc Fold system: Age and rate of folding**

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The “S” shaped Syrian Arc fold system, identified by Krenkel (1924), comprises a series of asymmetric anticlines (monoclines) and synclines extending from the Sinai Peninsula (Egypt), through the Negev and Judea/Samaria (Israel), to the Palmyride (Syria). The general trend of this fold belt changes from NE (Sinai and Negev) to NNE (Judea/Samaria) and back to NE (Palmyrides). Fold development is attributed to late Mesozoic reverse motion along pre-existing early Mesozoic normal faults. In the Negev, transition from steeply dipping Turonian formations to nearly horizontal Eocene formations suggest that folding initiated in late Turonian and terminated in the early Eocene. This is further supported by a series of angular unconformities separating Eocene from Senonian and/or Turonian strata. Further North in Samaria, inclined Eocene and Neogene strata separated by an angular unconformity indicate that folding extended to the Neogene. Still further North in the Palmyrides, a major part of folding took place in the Neogene, although there is evidence for a Turonian origin of several folds. Hence, folding of the entire Syrian Arc fold system initiated in late Turonian, when the early Mesozoic extensional stress field changed to a compressional field with maximum shortening oriented WNW-ESE. The termination of folding, however, wandered with time from the south to the north. The Neogene deformation of the Palmyrides coincides, and might be associated with the formation of the Dead Sea Transform and the collision between the Arabian plate (east of the Dead Sea transform and the Anatolian sub-plate).

The series of angular and erosional unconformities between various rock units ranging from the Turonian to the Eocene in the Hatira (southern Israel) and the Samaria anticlines (200 km to the north) enable estimation of the age, rate and spatial variation of folding. The mean folding rate during each time period is given by the mean change of dip and the time span based on biostratigraphical data. A series of average folding rates obtained indicate that in the highest folding rate of 3.2°/m.y in the Hatira anticline occurred during the upper Campanian and lower Maastrichtian. the lowest rate, 0.4 °/m.y., took place in the Paleocene.