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Sabina Bigi, Eugenio Carminati, Luca Aldega, Fabio Trippetta, Mohammad Ali Kavooosi



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**Zagros fold and thrust belt in the Fars province (Iran) I: control of thickness/rheology of sediments and pre-thrusting tectonics on structural style and shortening.**

Sabina Bigi<sup>1</sup>, Eugenio Carminati<sup>1</sup>, Luca Aldega<sup>1</sup>, Fabio Trippetta<sup>1\*</sup>, Mohammad Ali Kavooosi<sup>2</sup>

<sup>1</sup>Dipartimento di Scienze della Terra, Sapienza Università di Roma, Rome, Italy

<sup>2</sup>National Iranian Oil Company, Tehran, Iran

**\*Corresponding Author:**

Fabio Trippetta [fabio.trippetta@uniroma1.it](mailto:fabio.trippetta@uniroma1.it)

**Abstract**

The 300 km long arc of the Fars province is located to the south east of the NW-SE trending and SW vergent orogen of the Zagros Mountains. This region is one of the largest hydrocarbon reserves worldwide, and also as a territory of high quality outcrops. Geological cross-sections of the Zagros belt are usually based on very large scale geological maps (1:1.000.000 or 1:250.000), and on few subsurface data and aim at describing the decoupling relationship between cover and basement rocks and the subduction/collision history of the Arabian – Eurasia plates.

In this paper, we present a 253 km long cross-section across the Fars province on the basis of detailed geological maps (1:100.000 scale), field and subsurface data. Our purposes are to: 1) investigate the link between shortening inferred from our original cross-section (from a maximum of 9,1% to a minimum of 4,4%. for different sectors of the belt) and rift-related and flexure-related extensional faults, which in turn, control thickness and lateral facies variations; 2) describe the geometries of folds and thrusts and their relationship with pre-thrusting normal faults, that were inverted during shortening as transpressional or strike slip

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