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Early Jurassic extensional inheritance in the Lurestan region of the Zagros fold-and-thrust belt, Iran.

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It has long been recognized that the tectonic architecture of the Zagros mountain belt was strongly controlled by inherited structures previously formed within the Arabian plate. These preexisting features span in age from the pre-Cambrian to the Mesozoic, showing different trends and deformation styles. Yet, these structures are currently not fully understood. This uncertainty is partly related with the paucity of exposures, which rarely allows a direct observation of these important deformation features. The Lurestan Province of Iran provides a remarkable exception, since it is one of the few places of the Zagros mountain belt where exposures of Triassic and Jurassic rocks are widespread. In this area we carried out structural observations on Mesozoic extensional structures developed at the southern margin of the Neo-Tethyan basin. Syn-sedimentary extensional faults are hosted within the Triassic-Cretaceous succession, being particularly abundant in the Jurassic portion of the stratigraphy. Early to Middle Jurassic syn-sedimentary faults are observed in different paleogeographic domains of the area, and their occurrence is coherent with the subsequent transition from shallow-water to deep-sea basin environments, observed in a wide portion of the area. Most of the thrusts exposed in the area may indeed be interpreted as reactivated Jurassic extensional faults, or as reverse faults whose nucleation was controlled by the location of preexisting normal faults, as a result of positive inversion during crustal shortening and mountain building.