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Using GIS/RS techniques to interpret different aspects of salt domes in southern Iran

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Salt domes of southern Iran have been considered in some aspects as enigmatic and unique in the world. Although numerous contributions have been published about these structures, but some of their aspects (e.g. the mechanism of their uplift, transport of partly well preserved km-scale inclusions in some of these salt domes) are still debatable. In this paper, mutual interaction between strike-slip faulting and salt domes distribution in the Zagros Mountains of Iran is discussed. The main focus is on morphotectonic and GIS/RS interpretations of tectono-stratigraphic phenomena described for the southeastern part of Zagros Mountains. Using morphotectonic and GIS/RS techniques allow us for constructing a general map of strike-slip faults in order to highlight their role in the salt dome extrusion in the Zagros Mountain Ranges. In order to visualize some enigmatic aspects of these salt domes, a simplified geometrical arrangement of strike-slip faults has been derived from morphotectonic and GIS/RS analyses. The results obtained in this research portray some ambiguities of the decoupled salt domes distribution showing how strike-slip faults and salt domes distribution have interacted in the study area. Despite pervious reports, we show here for the first time that extrusion of each salt dome in the surface was the result of one strike-slip fault activity.