Geophysical Research Abstracts
Vol. 20, EGU2018-19741, 2018
EGU General Assembly 2018

Seismic and field evidences of salt tectonics affecting the sedimentary sequences from Paleozoic time in south east Fars province, Zagros (Iran)

Marco Snidero (1,3), Josep Anton Muñoz (1), Núria Carrera (1), Mireia Butillé (1), Joana Mencos (1), Hossein Motamedi (2), Alireza Piryaei (2), Sousan Sepahvand (2), Bahman Soleimany (2), Francesc Sàbat (1), and Josep Giner (1)

(1) 1Institut de Recerca Geomodels and Departament de Dinàmica de la Terra i de l'Oceà, UB (Universitat de Barcelona), (2) NIOC (National Iranian Oil Company), (3) Università Federico II di Napoli, c/o Dipartimento di Scienze della Terra, dell'Ambiente e delle Risorse

The study area is located in the Fars region at the southeastern tip of the Zagros Mountains. It comprises the on-shore and offshore portions of the fold and thrust belt and the adjacent foreland south of the High Zagros Fault. This area is located where the Zagros Range, the Oman Range, and the Makran accretionary prism meet. A wide range of salt-related structures have been observed along the transition from the frontal structures of the Zagros fold and thrust belt and the Oman Ranges, and their boundary with the Arabian Foreland basin to the south and west respectively. We present new interpretations for the evolutional model of selected key structures in this area based on off-shore seismic lines, field data and regional cross-sections. Along the foredeep several evidences of the Paleozoic and Mesozoic halokinesis are described from the offshore seismic, on the other hand onshore observations and description of the salt-tectonic record in the stratigraphic sequence is often limited to the Cenozoic. We have found clear evidences of passive diapirism during the relative quiescent early Palaeozoic, and the Mesozoic. Diapir rejuvenation and squeezing occurred during the Oman and Zagros contractional deformation, respectively during late Cretaceous to Paleogene and Oligocene to present day times. The structural and timing relationship between the Oman and Zagros compressional onsets determined the amount of deformation accommodated and the structural style of the diapirs during the shortening. The Oman reactivation is suggested by the presence of numerous Hormuz salt bodies embedded in the Gurpi Fm. and it is especially evident along the Oman Range thrust front. On the other hand all the salt structures were reactivated during the development of the Zagros fold and thrust belt with a general trend of progressive squeezing from foreland to the interior of the Zagros Mountains. The comparison between on-shore and off-shore diapirs reveals geometries in different stages of their evolution and at different scales.