

STRUCTURE AND TECTONISM OF JABAL SANAM SOUTHERN IRAQ

Wathiq G. Al-mutury

Basrah University/ Earth Science

Supervisors: Nasar M.S. Numan and Abdul-Mutalab H. Al-Marsomi

Abstract

Jabal Sanam located in southern Iraq near the Kuwait border has been studied with respect to its structure and tectonics. Geometric and genetic analyses have been carried out utilizing field collected data, geophysical maps, surface and subsurface maps together with the available aerial photographs. The Sanam structure bears resemblance to the salt diapirs which are abundant in the Arabia and in Oman.

It has been shown that Jabal Sanam is a type of salt plug that stems as a conduit from a deeper diapiric structure. The effect in depth that such diapirs might have had on the formation of anticlinal oil traps in southern Iraq is evident.

The exposed part of the Sanam Structure exhibits a salt plug with an ovoidal shape that has its long axis trending in a N.W.-S.E. direction. The rocks constituting the Sanam Structure belong to the Infracambrian, possibly an equivalent of the Hormuz Salt Series of the Arabian Gulf region. They consist of a lower shale unit and limestone and gypsum beds in the upper part. Overall the rocks of the Sanam Structures are heavily fractured and shattered. The type of fractures include joints, fault, gashes and veins. The lower shale unit in the core has several thrusts indicative of compression, while the upper limestone and gypsum beds exhibit tension gashes and normal faults indicative of extension.

Sanam Structure was initiated by salt tectonics that was elicited by density contrast, differential loading and vertical basement blocks interplay. The Sanam Structure consists of two parts; the first is a subsurface pillow or salt dome which was formed at a depth of six kilometers in the Early Cretaceous and continued to grow in the Tertiary; the second part is a salt plug at the surface which is an expression of a conduit that took off in an oblique upward piercement (15° off-nadir to the east) from the top of the deep salt dome in the Late-Tertiary and reached the surface in the beginning of the Quaternary (Pleistocene). A structural and geomorphological expression of the oblique piercement of the salt plug is shown in the field and on aerial photographs by the formation two arc-ridges around the Sanam Structure in its western part.