

Tectonic Growth of Salt Diapirs, Dead Sea Basin

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ABSTRACT

Uncomplicated structural features of the late Pliocene-early Pleistocene salt mass, which forms salt diapirs in the Dead Sea basin, is considered to be a consequence of relatively shallow outgrowth and less overburden than the general case.

Diapirism of the salt is under a buoyancy force resulting from a density contrast of 0.35 gm/cm^3 between the salt and younger sedimentary fill. Growth has been facilitated by extensive rifting, which is responsible for the tilting of the salt formations and for the development of tensional lines

of weakness for diapirism. Rifting and salt movement emphasized development of rim synclines in which sedimentation rate is up to 5mm per year.

Growth of the upper part of the salt diapir occurred by bedding plane slip of thick salt units and salt spines. Deformation, such as boudinage, imbricate structures, rare shears, folding or faulting, are found only in the periphery, close to the penetration faults. Some occur in connection with more competent anhydrite and dolomite beds. Rate of salt dome growth is at least 3.5mm/y during the last 20,000 years. Evidence is found for present growth movements.