



Deep "Drop Down" Basin in the Southern Dead Sea

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The large Dead Sea graben is located within the Dead Sea fault, a plate boundary of the transform type. The graben is composed of two basins. The northern one is occupied by a lake, about 300 m deep and has a sedimentary fill of about 6 km. The southern Dead Sea basin however, is unusually deep, with about 14 km of sedimentary fill. The geometry of the southern Dead Sea basin is anomalous along the entire Dead Sea fault. We suggest that the southern Dead Sea basin was formed during the first stage of the formation of the Dead Sea fault when the tips of propagating faults, one from the collision front in the north and one from the Red Sea in the south met in this area. The fault tips overlapped and curved towards each other, isolating a block of crust and lithosphere that dropped into the mantle. Geophysical data indicate that the basin is probably bordered on all sides by vertical faults that cut deep into basement. The deep part of the southern Dead Sea basin is not a pull-apart but instead a "drop down" basin. The Salton Trough in California is probably another example of such a basin.