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DATA REPOSITORY

Figure DR1: Comparison of weathered seismic scarplet (highlighted by white arrows) on Yammoûneh fault (A) with fresher seismic scarplet on Serghaya fault (B,C) and well-preserved mole-tracks on Râchaïya fault (D). (locations on Fig. 1)
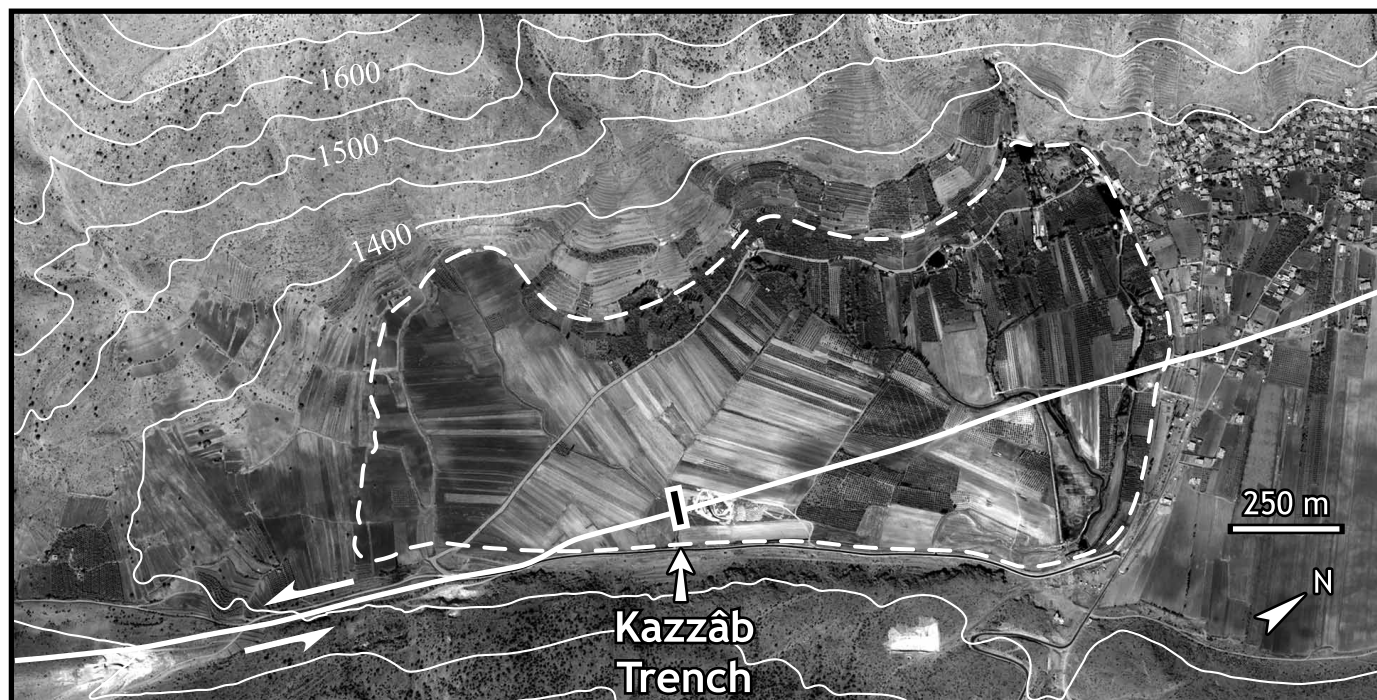
Figure DR2: Satellite image of Yammoûneh paleolake (ancient shoreline dashed). Main strand of Yammoûneh fault (bold white line) cuts across lacustrine deposits. There is little evidence of current strike-slip motion on either side of the basin, where the sedimentary fill abuts the limestone edges. Resistivity measurements were previously interpreted to indicate that the Yammoûneh fault cuts across the basin, offsetting vertically the underlying bedrock (Besançon, 1968).

Sample	Lab number	Material	d^{13}C ‰	Radiocarbon age (BP)	Layer or unit	Calibrated age (95% probability range)
(Y-02) G1	12233	Charcoal	-25.3	1115±35	5 [r]	**A.D. 864 − 1002**
(Y-02) G3	12234	Charcoal	-28.5	650±60	3 (top)	**A.D. 1272 − 1412**
(Y-02) G4	12235	Charcoal	-21.0	1980±90	12 [r]	**202 B.C. − A.D. 241**
(Y-02) G5	12236	Charcoal	-32.6	2000±100	21 (top)	352 − 296 B.C. / **208 B.C. − A.D. 240**
(Y-02) G6	12237	Charcoal	-29.3	718±35	1 [r]	**A.D. 1222 − 1306** / A.D. 1364 − 1387
(Y-01) K23	85982	Charcoal	-25(*)	610±45	2	**A.D. 1295 − 1410**
(Y-01) K24	85983	Charcoal	-25(*)	1125±50	see text	A.D. 780 − 794 / **A.D. 802 − 1001**
(Y-01) K29	85984	Charc. & wood	-25(*)	2055±40	21	**170 B.C. − A.D. 26**
(Y-01) K64	86069	Charcoal	-25(*)	1640±45	14	A.D. 261 − 279 / **A.D. 324 − 537**

Table DR3: Radiocarbon dates
Most of the catchments around the paleolake being steep and short (<4 km), it is unlikely that the dated charcoals were stored for very long before deposition. AMS measurements were made at Van de Graaff laboratory of Utrecht University ('G' samples) and at CAMS of Lawrence Livermore National Laboratory ('K' samples); ages were calibrated using OxCal 3.9 (Bronk Ramsey, 1995; 2001) and calibration curve INTCAL98 (Stuiver et al., 1998); calibrated ages exclude ranges with probability <2%, and bold ages represent most likely range (at least 80%); (*) means d^{13}C was assumed but not measured; [r] is for reworked samples.

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