

# **Thin earthquake triggered turbidites: examples from the Hazar Lake in Turkey**

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The Hazar lake is a 25km long pull-apart basin located along the east-anatolian fault in Turkey. This strike-slip fault between the Arabia and Anatolia plates already ruptured over most of its length in a series of magnitude 7 earthquakes. Sedimentary cores taken from 3 study sites within the lake revealed the presence of several sedimentary events. A link between those events and historical earthquakes had been suggested on the basis of different quantitative analyses and absolute dating (<sup>14</sup>C, <sup>137</sup>Cs & <sup>210</sup>Pb). For this research, we focused on three of those sedimentary events in order to achieve a better understanding of their deposition processes. Combining several high-resolution measurements (X-ray imagery, magnetic susceptibility, geochemical measurements, grain-size analyses) with thin sections, we reached a detailed characterization of the 3 main events. The analyses first showed that the three events were different from one to another. The events were also expressed differently from one study site to another. Distinct sources were thus activated at the same time. Moreover, one main event is actually composed of several sub-events showing various sedimentary structures. These structures are defined by a basal coarse-grain layer often disturbed by bioturbation and overlaid by varied thin layers (e.g.: mud cap, silty layer). We suggested that each sub-event composing one main event was deposited by distinct turbiditic flows showing different properties. Each turbiditic flow is inferred to be triggered by an earthquake sequence (including foreshocks, main-shock and aftershocks).