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The origin and nature of the rapid Late Tertiary filling of the Levant Basin

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The recent huge gas discovery in thick Early Miocene siliciclastic layers of the deep Levant Basin, offshore Israel, highlighted a new world-class prolific gas province and subsequently sparked great interest in the Oligo-Miocene deep-water sediments of the Levant Basin. Based on a dense network of seismic data collected in the previously unexplored deep Levant Basin, we present two fundamental observations. One, that more than half of its sedimentary column accumulated within a mere $\sim$15% of the basin's life span (Fig. 2), that is a $\sim$6 km thick section within 37 million years (post Mid Eocene). Two, this young section first accumulated in the deep basin and only then did large amounts of sediments amass along the continental margin.
These fundamental observations allude to two feasible source-to-sink scenarios. One, that the thick Late Tertiary section is composed of large amounts of terrigenous material which originated in Arabia and transported via the Israeli continental margin and two, that the terrigenous material originated in Africa and transported via the region that eventually evolved into the Nile River cone. Our data emphasizes the difficulties of the first scenario and suggest that these sediments were transported mostly from Africa, though limited turbidite layers may have been transported from the east. The proposed paleogeographic model incites new questions regarding ocean circulation at a time in which the neo-Tethys was closing and the marine connection to the Mesopotamian Basin either ceased or substantially diminished.