A high resolution record of sediment deposition in the Gulf of Aqaba, Red Sea, during the last ~1000 years

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The Gulf of Aqaba is a narrow and deep basin at the northeastern tip of the Red Sea. Sedimentation is dominated by biogenic and eolian material, as well as by material delivered by the Wadi Mubarak. Here we present paleoenvironmental proxy records from a 108 cm gravity core, recovered at 720 m water depth at the northern end of the Gulf. These records are compared to sediment flux directly sampled by co-located sediment traps deployed since 2014, which show that sedimentation is dominated by sporadic, short-lived flux events on the order of days. An event deposit in the sediment core at 96–87 cm, with coarse sediment at the bottom and a fining upward s equence is tentatively, and in analogy to previous studies, ascribed to a turbidite triggered by the historical earthquake at 1068 AD. This age assignment implies overall sedimentation rates on the order of 1 mm/yr at the sampling site, in general agreement with bulk flux estimates from the sediment traps as well as previously published sediment core records from the Gulf of Aqaba. Records of basic sediment geochemistry, foraminiferal abundances, and nitrogen isotopes will be discussed in the context of regional climate, hydrographic variability, and nitrogen cycling during the last 1000 years.

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