



## **A new stacked Mediterranean-Red Sea sea-level record for the last 500,000 years**

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Reconstructing past changes in global sea level under different climate forcings provides vital information about the evolution, dynamics, and sensitivity of Earth's climate system, such as timescales of ice-mass loss in relation to radiative forcing and naturally preceded rates of sea-level rise. Quantifying these processes requires well-resolved sea-level/ice-volume records with good age control and temporal continuity over different climate states. Global sea-level changes are well-constrained since the last glacial maximum by radiometrically-dated corals and paleoshoreline data, and fairly well-constrained over the last glacial cycle. There are relatively few such records for time intervals before the last glacial cycle, however, and among these there are some significant deviations. Two of these records rely on the 'marginal basin' method, which exploits the strong sensitivity of seawater  $\delta^{18}\text{O}$  in the Mediterranean and Red Sea to sea-level changes in the relatively narrow and shallow straits which connect the basins with the open ocean. Here, we present a new 'Med-Red sea-level stack' spanning the last 500 ky, which improves on previous Mediterranean and Red Sea sea-level reconstructions. It includes new and more highly resolved component sea-level records, and new probabilistic analyses that reduce uncertainties by accounting for stratigraphy in the component records.