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The archaeological evidence of sea level change in the Mediterranean: guidelines and reappraisals

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The maritime archaeological indicators play a crucial role for the reconstruction of past relative sea levels in the Mediterranean basin, because they fill the gap between the long-term geological information and the modern instrumental data. During the last decades, several papers have been published which present more estimates of the relative sea level change using these indicators. Different results can be mainly addressed to: *i)* difficulties to find good sea level markers within these structures, *ii)* doubtful archaeological interpretations, *iii)* different methods of investigations and analysis, *iv)* geophysical models. With this goal, it is crucial to define rigorous guidelines for the use of archaeological indicators for relative sea level studies. In particular, the *functional elevation* must be carefully estimated for the different structures. This is defined from the elevation of specific architectural parts with respect to the local mean sea level at that location and at the time of its construction. It provides the basis for determining sea-level change depending on the type of structure, its use and the local tide amplitudes. In addition, to understand the geophysical significance of the archaeological observations for the individual sites, it must be considered that the Mediterranean basin is affected by geodynamic processes and landscape evolution linked to active tectonics, volcanism, glacio-hydro-isostatic and eustatic factors. Focusing on material and methods, we show and discuss previous results and new relative sea level change estimates for the Mediterranean and the Tyrrhenian coast of Italy using a robust set of Roman age fish tanks, harbours and instrumental data.