

Holocene sea-level changes in SE Asia

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The region of Southeast Asia consists of a large number of low-lying islands and coastlines that are highly vulnerable to ongoing and future sea-level rise. Therefore, the project “Holocene sea-level changes in SE Asia” aims to investigate modern and future sea-level changes based on paleo relative sea-level (RSL) changes in the Holocene. In a first phase, existing data was compiled in a Holocene sea-level database and re-analyzed following a standardized protocol. All data points were classified into one of three different data types: sea level index points, indicating the position of the paleo sea level directly, and marine or terrestrial limiting points, indicating the sea level position above or below the indicator. In the previous phase we verified that, there is only a small amount of data available in Indonesia therefore fieldwork was conducted in the Spermonde Archipelago, south-western Sulawesi, Indonesia, to collect new sea-level data. The results provide ages of 26 fossil microatolls calculated from the radiocarbon analysis. 16 samples show ages varying between 5956.5 ± 83.5 years before present (a BP) and 3614.5 ± 98.5 a BP, and indicate paleo RSL positions from $-1.59 \text{ m} \pm 0.1 \text{ m}$ up to 0.46 m . Further, 9 samples show younger ages ranging from 236.5 ± 140 a BP to 36.5 ± 25 a BP and present paleo RSL positions between $-1.96 \text{ m} \pm 0.19 \text{ m}$ and -0.15 ± 0.13 m a BP. The last sample was dated to be modern. Finally, a combination of these RSL positions and Glacio Isostasy Adjustment models (GIA) will result in future sea level predictions of the Spermonde Archipelago and the area of SE Asia and identify which areas are highly endangered by sea-level rise.